112° 53′ eaſt longitude, and thence to *Bolſcheretſkoi* or the Great /31
River 14° 6′ eaſt. The figure of the peninſula of *Kamtſchatka* is ſomewhat elliptical, being broader towards the middle, and growing narrower towards both ends. Its broadeſt place is between the mouth of the river *Tegbil* and the river *Kamtſchatka*. Towards the ſource they are joined by the river *Elouki*.

The *Elouki* runs in the ſame latitude with thoſe rivers for 415 verſts. They call the ſea which ſeparates *Kamtſchatka* from *America* the Eaſtern Ocean. On the weſtern ſide lies the *Penſchinſka* ſea, which begins near the ſouthern point of the cape of *Kamtſchatka* and the *Kurilſki* iſlands, and runs northward between the weſtern coaſt of *Kamtſchatka* and the coaſt of
Ochotſkoy more than 1000 verſts. The northern part is called the /33
bay of *Penſchinſka* from the river *Penſchina* which falls into it. The hills make one continued ridge from north to ſouth through the peninſula, almoſt equally dividing the country. From this ridge ſeveral others extend towards the ſea, between which are the courſes of the rivers. Theſe ridges ſometimes run a conſiderable way into the ſea, and are called Noſs, or capes. There are more of theſe upon the eaſtern than the weſtern coaſt. All the bays between the capes are called, in general, ſeas; each having its
particular name, as the *Olutorſky* ſea, *Kamtſchatka* ſea, *&c.* We /03
ſhall hereafter give our reaſons for calling the whole peninſula by the name of *Kamtſchatka*, though in fact it hath in none of the different languages of the inhabitants any general appellation; but every part of the country receives its name from its inhabitants, or ſomething remarkable obſerved in it: and even the *Ruſſian* Coſſacks underſtand *Kamtſchatka* to be only the country lying near the river of that name; and to the other parts of this peninſula they have given the following appellations:

Kurilſki Country is the ſouthern part, ſo named from the *Kuriles* that inhabit it.

103 *The Coaſt* extends from the *Bolſcheretſkoi* or Great River to the *Tegbil.*

Awatſcha extends from the *Bolſcheretſkoi* to fort *Awatſcha.*

Bobrovoi or *Beaver Sea* is the diſtrict round *Kamtſchatka.*

Koreka, from the *Koreki* that inhabit it, extends from the north of the *Kamtſchatka* to the *Tegbil.*

Ukoi is the eaſtern coaſt from the river *Ukoi.*

Tegbil is the weſtern coaſt from the river *Tegbil.*

133 *Kamtſchatka* is plentifully furniſhed with rivers; however they
361 are ſo little that none of them are navigable by the ſmalleſt veſſels,
563 except the river *Kamtſchatka*, which will carry ſmall veſſels 200
verſts upwards from its mouth. Into this river it is reported that
ſome *Ruſſians* were brought by ſea, long before its ſubjection to
Ruſſia. It is at preſent called *Theodotoſhine*, from the chief of
thoſe people thrown a-ſhore, whoſe name was *Theodot*. Next to
this, the moſt conſiderable rivers are, the *Bolſchaia-reka*, or Great
River, *Awatſcha* and *Tegbil*; upon which the *Ruſſians* have
133 ſettlements. *Kamtſchatka* is likewiſe very well furniſhed with lakes,
particularly about the river of that name, where they are ſo numerous that there is no paſſage over land in the ſummer-time. Some of them are very large: the moſt conſiderable are, the lake of *Nerpitche*, which is near the mouth of the *Kamtſchatka*; the *Kronotzkoy*, out of which runs the river *Krodakighe*; and the *Kurilſkoy*, out of which runs the river *Oſernoi*.

133 The river *Kamtſchatka* riſes in a marſhy ground, and firſt runs
712 north-eaſt; then inclines more to the eaſt, and turning at once
R towards the ſouth-weſt, falls into the ocean in 56° 30′ north
177 latitude. From its ſource to its mouth, in a ſtrait line, is 496
.71 verſts; but the length of its courſe, according to the exacteſt
computation, is about 525 verſts; during which it receives into it many brooks and rivers. About two verſts from its mouth, upon the right ſide, are three deep bays. There are ſeveral forts built along the banks of this river by the *Ruſſian* Coſſacks, to

awe

awe and keep in ſubjection the wild inhabitants. The *Elouki* 133
may be reckoned the chief of all the rivers that fall into the 712
Kamtſchatka on the left ſide, and its head meets that of the 361
Tegbil. R

The *Tegbil* runs almoſt in the ſame latitude with the *Kamtſchatka*; 177
and the ſtrait road from the one to the other is by the .71
river *Elouki*. Some little forts and ſettlements of the natives are
ſcattered here and there upon its banks.

The *Bolſchaia-reka*, or Great River, called by the natives 103
Keekſha, runs out of a lake 185 verſts to the eaſt from its mouth, 133
and falls into the *Penſchinſka* ſea in the latitude of 52° 45′. Its
mouth is reckoned to be 555 verſts to the ſouth diſtant from that
of the *Tegbil*. It is called Great upon this account, that of all
the rivers that fall into the *Penſchinſka* ſea this is the only one
which they can navigate from its mouth nearly to its ſpring,
and this not without ſome difficulty, on account of its rapidity
and the great number of iſlands. At the time of high water it is 133
ſo deep at the mouth that large veſſels may enter; for the water 489
has been obſerved to riſe at full and new moon very little leſs than
nine *Paris* feet or four *Ruſſian* yards. It receives a multitude of
rivulets; the moſt conſiderable of which is the *Biſtroy* or Rapid
River, ſo called from the ſwiftneſs of its ſtream, cauſed by the
many ſhoals and cataracts. You may go from the mouth of the
Great River to that of the *Biſtroy*, and up within 40 verſts of its
head; and from thence over a carrying place to the river *Kamtſchatka*,
that ſprings out of the ſame marſh, and runs quite to the
Eaſtern Ocean. And though this paſſage muſt be laborious and 489
tedious, upon account of the rapidity of the river, and the many
ſhoals and cataracts, where every thing muſt be carried by land,
and which would render it impoſſible to advance more than 10
verſts in a day (as I found in my way to *Kamtſchatka* in the
year 1739, when the boats were carried over the marſh, about
two verſts from the head of the Rapid, to *Kamtſchatka*); yet,

conſidering

489 conſidering that all ſorts of carriages in the ſummer are worked from one ſettlement to another by men, the ſaid paſſage by water would be a great help to the people of this country who are obliged to carry ſtores and baggage for the government: for, inſtead of employing 10 or 15 men about a carriage of 20 pood, the ſame would be performed with leſs trouble in a ſmall boat by two; and to encreaſe the facility of commerce, there would at all times be a free road, which is the caſe now only in winter.

It may be hoped, however, that even without ſuch a road this difficulty will be removed, when the new colony ſettled there ſhall have a ſufficient number of horſes for drawing thoſe carriages. From the *Bolſcheretſkoi* to the upper fort you may travel in carts drawn by horſes; but, in ſummer, this is practicable in no other part of the country by reaſon of frequent obſtructions from rivers, marſhes, lakes, and high mountains.

133 The *Baranew* rivulet is particularly remarkable for the number of boiling ſprings which are found near it. It falls into the *Keekſha*, on the ſouth-eaſt ſide, 44 verſts from *Bolſcheretſkoi*; and upon the mouth of it ſtands the ſettlement *Kalickin*, or *Opachin*, which is about 70 verſts diſtant from the boiling ſprings.

The river *Awatſcha* riſes from under a mountain about 150 verſts from its mouth, and runs from weſt to eaſt 'till it falls into the bay of St. *Peter* and St. *Paul* in the Eaſtern Ocean, almoſt in the ſame latitude with the *Keekſha*. This river is very near as large as the laſt, and of more utility.

The bay of St. *Peter* and St. *Paul*, or *Awachinſkaya* bay, is 14 verſts in length, and as many in breadth, of a circular form, and ſurrounded on all ſides by high rocky mountains. Its mouth, conſidering the ſpace of the bay, is very narrow, and ſo deep that ſhips of all dimenſions may enter it without any danger. Upon its banks are built, by order of the navy, officers' apartments, barracks, magazines, &c. On the north ſide of the

Awachinſkaya

Awachinſkaya bay, almoſt oppoſite the *Kareemchin* fort, are two 133 high mountains, one of which ſmokes almoſt continually, and ſometimes burns.

The breadth of the cape of *Kamtſchatka*, between the mouth of the *Keekſha* and the *Awachinſkaya* bay, meaſures from ſea to ſea, by a ſtrait line, only 255 verſts; a diſtance much leſs than that between the *Tegbil* and the *Kamtſchatka*.

There are a multitude of rivulets which fall into the Eaſtern Ocean between the mouth of the *Awatſcha* northward, and the river *Kamtſchatka*, and from that again to the *Anadir*; but being of ſmall note, we ſhall only remark any thing that may be curious relating to them; among which may be reckoned the mountain *Shupanoveſkaya*, ſo called from *Shupanova* a ſtream near which it ſtands. This mountain is a volcano, and has ſmoked at the top in ſeveral places for many years, and ſometimes rumbles, but does not flame. The *Camel's Throat*, a rivulet near this hill, is remarkable 133 for the danger of its paſſage through a very narrow 823 valley, between high and ſteep mountains, from whence the ſnow 784 is apt to tumble upon the ſlighteſt accident, even, it is ſaid, from a ſtrong exertion of the voice; and, falling down in vaſt heaps, ſometimes buries paſſengers under it; for which reaſon the natives make it criminal to ſpeak aloud as they paſs through the valley: in other reſpects the road is very convenient. On the ſouth ſide 133 of the river *Shopbead*, or *Shupanova*, near the ſea ſhore, are a great many pillars or rocks, which appear above water, and make its entrance very dangerous; a little beyond this to the ſouth is a bay, called *Nutrenoi*, ſurrounded by rocky mountains, about four verſts in length and breadth; and near it, about the head of a rivulet, called *Shenmeek*, are large wells of boiling water. Out of a mountain near theſe ſprings, in many places, proceeds a ſteam, and the bubbling of boiling water is heard, but no ſprings have made their way through yet, though there are conſiderable fiſſures here and there, and the ſteam iſſues forth with the ſame rapidity

as

133 es out of the *Eolipile*, and is ſo hot that the hand cannot bear it. After paſſing through a very woody and mountainous country, we come to the remarkable ſtream *Krodakigbe*, or the Larch-Tree River, which ruſhes out of the great lake *Kronotzkoy*, in ſuch a caſcade that one may walk under it: this lake is in length about 50 verſts, reckoned to be 40 in breadth, and is near 50 from the ſea. Around it are high mountains, two of which about the ſides of the upper mouth of the rivulet *Krodakigbe*, riſe above the reſt. Multitudes of rivulets empty themſelves into the lake *Kronotzkoy*, whoſe ſprings are near thoſe rivers which run into the *Kamtſchatka*.

161 From this place, nothing worth remarking occurs 'till we 133 come to the *Kronotzkoy* Noſs; and here begins the Beaver Sea, which extends to the *Shupinſkoy*. The coaſt from the *Kamtſchatka* to the *Kronotzkoy* Noſs is every where ſandy; and near the bay, called *Ukinſkaya*, begin the habitations of the ſettled *Koreki*; but the *Kamtſchadales* inhabit all the country to this place.[1]

103 The river *Nungeen*, which falls into *Nutrenoi* bay, is called, by the Coſſacks, *Pankara*, becauſe there was formerly on the ſouth ſide of the bay a ſmall *Koreki* fort of the ſame name; but the inhabitants having built a ſmall fort on a high hill on the northern ſide of the bay, which they called *Gengota*, abandoned it: this fort is ſurrounded with a wall of earth about 000 a fathom high, and a yard thick, having within it a double palliſade, and on each ſide are two baſtions raiſed. It has three gates to the eaſt, weſt, and north. The *Koreki* purpoſe to leave their old fort, and to remove into the new one, which they have built about the inward point of the above-mentioned bay, and call it *Ueackang-Atenum*: this was the firſt place that I found fortified by the natives; for the others were nothing more than habitations dug in the earth, ſurrounded with huts, as with ſo many towers without any outward fortifications;

[1] [all the country south of Ukinskaya Bay]

000 fications; but, on the contrary, further to the north, there is not one ſettlement of theſe people which has not, beſides its natural ſtrength of ſituation, a wall to cover it. The *Koreki* in thoſe places ſay, that they thus provide for their defence againſt the incurſion of the *Tchukotskoi:* but as that people have never invaded theſe places, ſome other cauſe muſt be ſought for this precaution of the *Koreki*; and we can account for it only from their apprehenſions of the Coſſacks, who uſually travel this way.

133 Upon the north point of a bay which receives the *Kitkitannu*, a rivulet, there is a ſmall fort built on a high rock, and fortified by a wall of earth about 10 feet in height. Its gates are on the eaſt and ſouth ſides. The inhabitants of it are under the commander of the ſmall fort *Keemgu*, whom the Coſſacks call a *Ruſſian*, he being of that extraction. From this fort there is a low cape that projects into the ſea; beyond this cape there is a deep bay of about eight verſts in breadth, and equally as broad at its mouth as in the middle; but all the reſt of the bays which I have ſeen are narrow at their mouths. Into this bay the river *Karaga* enters by two mouths, and almoſt meets near its head with the *Leſnaya* river, to which they uſually go from the *Karaga*. On the north ſhore of the bay there ſtands, on a high hill, the ſmall fort *Keetalgeen*, in which every hut is incloſed with a paliſade. Beſides this ſmall fort on the river *Karaga*, there are two other ſettlements of the *Koreki*. Over-againſt the mouth of the *Karaga*, 20 verſts from the ſhore, is an iſland, called *Karaginſkoy*, the lower end of which is oppoſite to *Nungeen*, and the upper end to *Kute* cape. 101 *Koreki* inhabit this iſland; but thoſe on the continent do not allow them to be of the ſame race with themſelves; and it muſt be obſerved, that the manners of the *Karaginſkoy* appear as barbarous to the *Koreki*, as thoſe of the *Koreki* do to more

Civilized nations.

000 civilized nations. Their number is reckoned to be 100 men or more, but not above 30 of them pay any tax, the reſt, at the time of its gathering, hiding themſelves in the mountains. They go to this iſland in the ſummer in their little boats; but in the winter they have no communication with it.

133/721 R 177 .71 There is little worth notice after you paſs the above-mentioned iſland, 'till you come to the *Uyulen* or *Olutora* river. Upon this river the *Ruſſians* twice built the *Olutorſkoy* fort. The firſt was built by a native of *Jakutſki*, called *Athanaſey Petrove*, upon the ſouthern ſhore, very little above the mouth of the *Kalkina* rivulet which falls into the *Olutora* from the ſouth; and the ſecond a great deal below that place under the direction of Major *Paulutſkoy*, who was ſent there on account of the rebellious *Tchukotſkoi*; but both of them were forſaken and burnt down by the *Olutores*. The laſt fort is about two days' voyage from the mouth of the *Olutora*.

133 The *Atwaleck* cape, which extends 80 verſts into the ſea, begins near the river *Elir*, and points towards the *Govyannoy* cape. The ſea between thoſe capes is called *Olutorſkoy*. The *Pockatska* riſes in the ſame plain with the river *Glotova*, which runs from the north-eaſt into the *Olutora*. From the *Kalkina*, where was built the firſt *Olutorſkoy* fort, to the river *Pockatska*, is five days' journey with rein-deer, reckoning for each day between 30 and 40 verſts. Between the *Katurka* and the land oppoſite to *Anadir*, there projects into the ſea a rocky cape, called *Kateerſkoy* in 64° 15′ north latitude. The diſtance from the *Petropaulauskaya* haven to the mouth of the *Anadir*, as obſerved by the ſea-officers, is 19°. 20′; and the ſea coaſt from the *Kurilskaya Lopatka* to the *Tchukotskoi* cape, north eaſt, which lies in 67°, is for the moſt part mountainous, eſpecially in thoſe places where the capes project into the ſea.

We

We now come to conſider the rivers that fall into the Eaſt /133 Sea from the mouth of the *Awatſcha*, towards the ſouth, to the *Kurilskaya Lopatka*; and from the *Kurilskaya Lopatka* into the *Penſchinska* ſea to the *Tegbil* and the *Puſtaia* rivers.

There are but few rivulets that interſect the country between the mouth of the *Awatſcha* and the *Lopatka*. The ridge of mountains, which divides *Kamtſchatka*, extends to the Eaſt Sea: the declivity is ſteep and craggy; and the gulphs and bays, which are formed by theſe mountains, afford a ſafe harbour for veſſels of any burthen in the worſt weather.

The *Kurilſkaya Lopatka*, which by the natives is called *Kapoore*, /03 is the ſouthernmoſt point of the cape of *Kamtſchatka*, and /133 divides the eaſtern from the *Penſchinska* ſea: it takes its name from its reſemblance to a man's ſhoulder-blade. Mr. *Steller*, who has been upon the *Lopatka*, ſays, that the place is not more than 10 fathoms above the ſurface of the ſea, and for that reaſon is ſubject to great inundations, ſo that for 20 verſts from thence no-body lives, except thoſe who come there in the winter to catch foxes; and when the ice is carried thither with the beavers on it, then the *Kuriles*, who follow this ice along the ſhore, aſſemble here in great multitudes. Within three /134 verſts from the *Lopatka* nothing grows except moſs; and there /137 are neither rivers nor ſprings, only a few lakes and pools. The ſoil conſiſts of two layers, the lower is ſtrong, and the upper ſpongy; and its ſurface is full of hillocks, and uſeleſs. The firſt rivulet /133 falling into the *Penſchinſka* ſea, is called the *Utatumpit*; two verſts from the *Utatumpit*, the rivulet *Tapgutpan* runs into the ſea, upon which ſtands a ſmall fort called *Kochinskoy*; and three verſts from thence is the *Pitpuy*, or *Ozernaya*, which runs out of a conſiderable lake divided from the ſea by a mountain. The *Ruſſians* call this river *Kambala*, or Flounder River, becauſe great numbers of flounders are caught in the mouth of it.

/33 The lake out of which it runs, and the mountains which lie between it and the ſea, are called by the ſame name. Near the *Kambalinſkoy* lake is built *Kamabalinſkoy*, a ſmall *Kurilſkoy* fort. From the *Kurilſkoy* lake, towards the ocean, ſtrait to the *Awatſcha*, is not above 19 *German* miles; but the road is exceſſively difficult; for you muſt paſs over eleven high mountains, and ſome of them are ſo ſteep that travellers are obliged to let themſelves down with ropes.

About this lake are ſeveral remarkable mountains; particularly two, one on each ſide of it, which emit ſmoke, and have done ſo many years; and which Mr. *Steller* ſays he ſaw in his journey from the *Yavina* to the *Ozernaya* river.

Though I went as far as the river *Ozernaya* in 1738, yet I did not ſee thoſe mountains, and only obſerved hot ſprings in two different places. Theſe ſprings run within 20 verſts from its mouth, ſome of them into the river *Pauſtia*, and others into the river *Ozernaya*, both of them on the ſouth ſide of it.

The river *Apanach* is reckoned the boundary of the province of *Kurilſkoy*. It runs from under the mountain called *Opalſkaya Sopka*, which is 85 verſts from the ſea, and excels all the reſt of the mountains about the *Penſchinſka* ſea both in height and fame; particularly on this account, that it can be ſeen by ſeamen from both ſeas, and ſerves them for a land-mark.

The ſhore from the *Lopatka* almoſt to the *Kambalina* is low. From the *Kambalina* to the *Ozernaya* is ſo mountainous and ſteep, that one cannot go near the ſea.

From the *Ozernaya* to the *Opala* it is likewiſe mountainous, but more upon a level.

From the *Opala* to the Great River is an extenſive plain, ſo that not one hill is to be obſerved near the ſea. After paſſing a great number of rivulets, all of which ariſe out of a range of mountains,

called

called *Stanovoy* ridge, we come to the river *Geek*, called by the 103
Coſſacks *Vorovſkaya*, or Rogue's River, becauſe the *Kamtſchadales* 133
who live upon it were frequently concerned in inſurrections, and
uſed to kill the tax-gatherers treacherouſly. From hence we meet nothing worth notice 'till we come to a *Kamtſchatkoi* fort, called *Tackauta*, in which travellers uſually equip themſelves for paſſing the ridge. Here the common road lies near a rivulet, from the head of which it paſſes the *Stanovoy* ridge, 'till it deſcends to the heads of the river *Keergena*, which falls into the *Kamtſchatka*.

From the *Keergena* we paſs up the river *Kamtſchatka* to the 133
Kamtſchatkoi fort. The country between the little fort *Tackauta* and the *Stanovoy* ridge is a deſert of 110 verſts in extent, and from the ridge to the upper *Kamtſchatkoi* fort is 65, the land equally barren.

The above road is very difficult and dangerous, for a great part 133
of it lies on the river, which, from the rapidity of its current, in 487
many places never freezes. Travellers are obliged, therefore, in ſome parts to keep cloſe to the ſides with great care; for if the ice breaks nothing can ſave them, the rocks on the banks in ſeveral places being ſo ſteep that it is impoſſible to get on ſhore, and the river runs ſo ſwiftly that you are immediately driven under the ice. The ridge is paſſable only in calm and fair weather, for which we are obliged to wait ſometimes ten days or more; at other times it is impoſſible to find the way, and we muſt inevitably fall down the precipices, and be loſt. The propereſt time to paſs is when no clouds are to be ſeen on the top of the ridge, for even the leaſt cloud is a ſign of a great ſtorm there. To croſs over this ridge takes up a whole winter's day. The greateſt danger is in paſſing over the very top, which is called by the Coſſacks, *Greben*, or a comb. Its breadth is 30 fathoms; it is like a boat with the bottom upwards, the aſcent on both ſides being very

133 very ſteep. The paſſage is troubleſome even in the calmeſt weather,
487 for the road falling off leaves nothing but ice: the *Kamtſchadales*,
481 therefore, in order to paſs it in ſafety, have under their
ſnow-ſhoes, two nails; yet theſe are of ſmall ſervice if the wind overtakes them there, for they are frequently carried from one ſide to the other to the great hazard of their lives, or at leaſt of their limbs. Beſides which, this paſſage is attended with the danger of being ſmothered in the ſnow, the narrow path lying between high, and almoſt perpendicular, mountains, from which the ſnow falls in heaps upon the leaſt motion. This is a danger, indeed, unavoidable in every place where the road lies in narrow and deep vallies.

In mounting the ridge all muſt walk, for the dogs can hardly aſcend it even with the light baggage; but in deſcending it is otherwiſe, for then they only leave a ſingle dog in the ſledge: the reſt are taken out, it being impoſſible to manage them all in ſuch a road. Although this paſſage of the ridge be ſo difficult, yet, as it is the uſual road to *Kamtſchatka*, one may conclude that any other paſſage from ſea to ſea muſt be ſtill more difficult and dangerous.

133 The coaſt from the mouth of the Great River to the river *Puſtaia*, as far as the *Shaback*, is ooze and ſoft mud, ſo that many veſſels have been thrown upon it without receiving any hurt. From the *Shaback* the ſhore begins to be bolder, though not rocky; but from the *Tulaban* river it is mountainous, rocky, and dangerous to ſeamen.

600 The late deſcriptions of the ſhore of the *Penſchinska* ſea, from the *Leſnaya* to the *Penſchina* and to the *Ochotska*, are more particular than the former: for in the year 1741 a high road was eſtabliſhed to *Kamtſchatka* with poſt-houſes at proper ſtations; yet, with regard to the diſtances of places, they are not much more accurate; ſince there were no aſtronomical obſer-

vations

103 131 the natives *Kuſhi*, and by the *Ruſſians Kuriles*. The exact number of thoſe iſlands cannot be aſcertained; but, according to the verbal accounts which were gathered from the *Kuriles*, and the natives of the ſouthernmoſt iſlands, and from the *Japaneſe*, who were driven by diſtreſs of weather upon the coaſt of *Kamtſchatka*, they are reckoned to be twenty-two. Perhaps they do not take the ſmall ones into this number: for by the account of captain *Spanberg*, who went as far as *Japan*, there appears to be a great many more; but as the ſaid captain found it difficult to give them *Ruſſian* names, all of them that had any relation to the *Kurilskoy* names, except the two that lay neareſt to *Matma Kunatin*, were allowed to keep their former appellations.

133 136 161 651 *Schumtſchu* is the neareſt iſland to the *Kurilskaya Lopatka*, and extends in length from the north-eaſt to the ſouth-weſt 50 verſts, and in breadth about 30. This iſland is full of mountains, out of which, as alſo from the ſmall lakes and marſhes, many little rivers run into the ſea. In ſome of them are found different kinds of ſalmon, and ſeveral other fiſh, but not in ſuch plenty as to furniſh the inhabitants with proviſions for a winter. Upon the ſouth-weſt point, near the ſtreight that is between this and the ſecond *Kurilskoy* iſland, are three *Kurilskoy* ſettlements, that contain only 44 inhabitants; ſome of whom pay the taxes in ſables and foxes, but the majority pay them in ſea-beavers' ſkins.

The inhabitants of this iſland, as well as thoſe of the *Kurilſkaya Lopatka*, are not the right *Kuriles*, but are of the race of the *Kamtſchadales*: for ſome diſſentions having ariſen between the inhabitants of that nation, ſoon after the *Ruſſians* entered the country, a large party of them retired here and to the *Lopatka*; where they became connected, by mutual inter-marriages, with the people of the ſecond iſland, whoſe particular cuſtoms they have adopted, and from thence have received the name of *Kuriles*.

The channel between the *Kurilſkaya Lopatka* and this iſland 133
is 15 verſts in breadth; over which they paſs in ſmall boats, 123
when the weather is fair, in three hours. This paſſage requires 782
not only fair weather, but likewiſe a flowing tide. In the time 777
of the ebb, the waves ſpread for ſome verſts, are rapid and
white, and ſo large that even in calm weather they riſe two
or three fathoms high. Both the Coſſacks and *Kuriles* have a
ſuperſtitious awe and veneration for theſe waves; and when they
row over them, offer them a ſacrifice by throwing chips made
on purpoſe, imploring a ſafe paſſage; the pilots alſo uſe conjurations the whole way.

The ſecond *Kurilſkoy* iſland, *Paromuſir*, is twice as large as 133
the firſt. It lies north-eaſt and ſouth-weſt, and is ſeparated
from the firſt by a channel two verſts broad, where one veſſel
may lie in time of neceſſity, but not without danger, there
being no proper place for anchorage: and if a veſſel parts
from her anchor, ſhe will be in very great danger; for the
ſhore here being ſteep and rocky, and the channel narrow, it
is next to impoſſible for her to eſcape. There was a melancholy
example of this in the year 1741, when one of our veſſels was
caſt away here. This iſland is alſo mountainous, and has as 137
many lakes and rivulets as *Schumtſchu*; and on both of them, there 372
is no other timber than *Slanetz* and *Ernick* which are uſed by 313
the inhabitants for fuel, and they build their huts of different 342
kinds of wood which they find thrown on the ſhore
by the waves from *America* and *Japan*; among theſe are
ſometimes found pieces of ranfarn wood, of which ſeveral large
one's were brought thence to me. The inhabitants of this [101]
iſland are right *Kuriles*, who came there from the iſland 177
Onneckoot; but upon what account is not known. All 439
affirm, that between the inhabitants of the two above-mentioned
iſlands, and the moſt remote, commerce was formerly eſtabliſh-

177 ed: thoſe of the remote iſlands brought to them all ſorts of
439 lackered wooden ware, ſcymitars, ſilver rings which they wear in their ears, and cotton ſtuffs; and from them in return, they uſed to take chiefly, eagles' feathers, which are uſed in ornamenting their arrows: this ſeems very probable; for I had from this iſland a lackered waiter, a baſon, a *Japaneſe* ſcythe, and a ſilver ring; all which I have ſent to the *Imperial* Chamber of curioſities. Theſe articles the *Kuriles* could have from no other place than from *Japan.*

361 The *Kuriles* of this iſland[1] have their habitations near the ſouth-weſt point, upon a lake five verſts in circumference, out of which a ſmall rivulet, called *Petpu*, runs into the ſea.

133 Both theſe iſlands are ſubject to frequent and terrible earthquakes, and inundations: one of theſe calamities happened in the year 1737, about the time of my coming to *Kamtſchatka*; and another in *November*, 1742. We ſhall relate the firſt circumſtantially in its proper place; but as for the ſecond, though it was great, yet I have not been informed of the miſchief and deſtruction it occaſioned; for it happened after my departure from *Kamtſchatka*; and Mr. *Steller* makes no mention of it in his account.

The third *Kurilskoy* iſland is called *Sirinki*, and lies ſouth-weſt of *Paromuſir*. The fourth iſland is called *Onnecutan*. This iſland is leſs than *Paromuſir*, and lies from north-eaſt to ſouth-weſt, as that does, from which they row to it in one day.
161 It has many inhabitants of the ſame origin with the *Kuriles*
651 of *Paromuſir* iſland, as was ſaid before, out of which ſome families go over to viſit the inhabitants of *Paromuſir*, and vo-
651 luntarily pay a tribute in beavers and foxes. The author concludes from this, that the reſt of theſe iſlands would not refuſe to pay the tribute, if proper perſons were ſent to bring them under ſubjection; and give them aſſurances, by

kind

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[1] [Parmushir]

kind repreſentations, of the clemency of her Imperial majeſty, 651
with promiſes that ſhe would protect and defend them from their enemies.

133 Neither I nor Mr. *Steller* could have an oppportunity to inform ourſelves particularly of the reſt of the *Kurilski* iſlands; therefore we ſhall give the accounts of them that were communicated to me by Mr. *Muller*, which he had from the *Japaneſe*, who were ſhipwrecked upon the coaſts of *Kamtſchatka*.

Between Mr. *Muller*'s account and our's, there is ſome difference; for in his, *Onnecutan* is called the ſixth iſland. However this might happen only on account of his reckoning the ſmall iſlands alſo, which the *Kuriles* do not. According to his deſcription, beyond the *Paromuſir*, or the ſecond *Kurilskoy* iſland, there are three more iſlands; *Sirinki* is reckoned the third; *Uyakoopa*, the fourth; and the *Kukumita*, or *Cucumiva*, the fifth; the *Sirinki* and *Kukumita* are ſmaller than *Uyakoopa*, which iſland is remarkable for a high mountain. The ſaid iſlands are placed in a triangle; the *Uyakoopa* lying moſt north, and fartheſt weſt; and the *Sirinki*, with regard to the former, ſouth-eaſt, and in the ſame longitude with *Paromuſir*; and the *Kukumita* a little farther ſouthward than the *Uyakoopa*. It ſeems that theſe iſlands in the General *Ruſſian* map are expreſſed under the names of *Diacon*, *St. Iliab*, and *Galanta*, which are placed in a triangle, though their ſituation is not exactly the ſame as in the above deſcription. The ſixth *Kurilskoy* iſland, according to Mr. *Muller*, is called *Muska* and *Onnecutan*. The ſeventh is *Araumakutan*, is uninhabited, and there are ſome burning mountains as in *Kamtſchatka*. On the eighth iſland *Sujaskutan*, which is as large as the former, ſome few people inhabit who are not taxed. From this iſland to the weſt lies the ninth called *Emarka*; and thence on the ſouth-weſt ſide is the tenth iſland *Maſhachu*, which is ſmall and uninhabited; and on the ſouth-eaſt ſide from the *Sujaskutan* there is a ſmall iſland *Ebachu*, which is reckoned the eleventh.

/33 The twelfth iſland *Shockoeki* lies on the ſouth ſide, and ſo
diſtant from the *Sujaskutan*, that they can hardly row to it in
half a day, even when the days are longeſt, in the lighteſt boat.
It is ſaid, that the *Japaneſe* carry ore from it in large veſ-
ſels; but what ore is not known. The thirteenth iſland, and
the following to the ſeventeenth, are called *Motogo*, *Shatovo*,
Utitir, *Kituy*, and *Shimutir*. The *Utitir* lies ſomewhat to the
eaſt, and the reſt in one line ſouth. The channels are croſſed in
light boats, in leſs than half a day, but the paſſage is exceſſively
difficult, becauſe the tide runs very rapid in all of them; and,
when it happens to be a ſide wind, theſe ſmall veſſels are driven into
the ſea, and loſt; and for this reaſon the inhabitants of all theſe
iſlands paſs and repaſs theſe places early in the ſpring in calm
weather. The *Motogo*, *Shatovo*, and the *Utitir* iſlands have
nothing remarkable in them. On the iſland *Kituy* grow the
/61 reeds of which they make their arrows. The *Shimatir* is larger
than the reſt, and has many people on it, who reſemble the *Ku-*
riles of the firſt three iſlands in all reſpects, but are not under
the *Ruſſian* government, nor any other foreign power. The
navigators who were ſent by *Peter the Great*, only ſaw this
iſland, beyond which no *Ruſſians* ever were until the ſecond
Kamtſchatkoi expedition.

/33 The *Cheerpuy* is reckoned the eighteenth of the iſlands. It lies weſt at the mouth of the channel. On this is a very high mountain, but no inhabitants. Some people come there from the other iſlands to catch fowls and dig roots. The people of *Kituy* have ſometimes heard firing of cannon on this iſland, as they relate, but on what account they know not. They likewiſe report, that formerly a *Japaneſe* veſſel was loſt upon it, whoſe people were taken by the inhabitants of the next iſland, and were ſent to *Japan* to be redeemed.

000 The channel which divides the iſland *Shimutir* from the nineteenth iſland *Eturpu* is ſo broad, that one cannot ſee one iſland

other places, and the ſecond by boiling ſea water into ſalt; but 135
the troubleſome diſtant carriage of the iron, and the boiling of 258
the ſalt, are attended with ſuch expence and difficulty, that they 435
are both ſold at a moſt intolerable price. One cannot buy a 439
common ax under two rubles, and a pound of ſalt coſts four rubles.

CHAP. II.

Of the VOLCANO's *or* BURNING MOUNTAINS. 133

THERE are three burning mountains in *Kamtſchatka*, the *Awachinſky*, the *Tulbatchinſky*, and the *Kamtſchatka*.

The *Awachinſky* mountain ſtands upon the north ſide of the bay of *Awatſcha*, at a good diſtance indeed, but its bottom reaches to the very bay; and all the high mountains, near one half of their height, are made up, as it were, of rows of hills ſet one upon another, and the top they call the *Shatſe*, or tent, which is always naked, but the lower parts are generally covered with wood.

Theſe mountains for many years throw out a continual ſmoke, but flame only at times. The moſt terrible fire happened, as the *Kamtſchadales* ſay, in the ſummer of the year 1737; but this laſted no longer than 24 hours, and concluded by throwing out a vaſt cloud of aſhes, which covered the adjacent parts the depth of a verſhoke *.

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* A verſhoke is the $\frac{1}{16}$ of the *Ruſſian* arſbia, which contains 27 inches.

133/731 After this, in *Awatſcha* and the iſlands near the *Kurilſkaya Lopatka* they felt a terrible earthquake and motion of the waters, which was obſerved in the following manner. The earthquake began about three o'clock in the morning the 6th of *October*, 1737, and continued about a quarter of an hour, and many of the *Kamtſchatkoi* huts and tents were overturned. At the ſame time the ſea was driven upon the ſhore, and roſe about 20 feet; immediately after all the water was carried back to a great diſtance from the ſhore, and then it returned again higher than before, and afterwards retired ſo far that one could not ſee it from the ſhore. At that time, in the paſſage between the firſt and ſecond of the *Kurilſki* iſlands, they obſerved cluſters of rocks in the bottom of the ſea that had never been ſeen before, although they formerly had great earthquakes and extraordinary agitations of the ſea. A quarter of an hour after this the earthquake returned with moſt terrible waves, and the ſea overflowed the ſhore 200 feet high, which, as formerly, immediately retired. This rolling motion continued for a long time, the ſea frequently approaching the ſhore and departing from it. Before every earthquake a great, heavy, rumbling noiſe was heard from this overflowing of the ſea. The inhabitants were all ruined, and many of them miſerably loſt their lives. In ſeveral places the meadows, little hills, and fields, were turned into ſalt-water lakes. This was not ſo violent upon the *Penſchinſka* ſea as upon the Eaſtern Ocean; and the people about the Great River ſuffered very little.

At this time we ſailed from *Ochotſka* to the mouth of the Great River; and when we came on ſhore the 14th of *October*, the earthquake was ſtill perceptible, which was ſometimes ſo ſtrong that we could not ſtand upon our feet; and this continued to the ſpring of the year 1738: however, it was more upon the *Kurilſkaya Lopatka* and the coaſt of the Eaſtern Ocean than in thoſe places that were more remote from the ſea.

The Coſſacks of the great river, who were then upon the *Kurilſki* iſlands, told me, that upon the beginning of the earthquake they ran with the natives up to the tops of the mountains, and left all their goods, which were deſtroyed, as well as the habitations of the *Kuriles*.

The *Tulbatchinſky* mountain ſtands upon that neck of land which lies between the rivers *Kamtſchatka* and *Tulbatchik*: it has ſmoked for many years. In the beginning of the year 1739, for the firſt time, it threw out a ball of fire which ſet the woods on fire. After this fire-ball aroſe a thick cloud, which increaſing gradually at laſt fell down and covered the ſnow 50 verſts round with aſhes. I was going at this very time from the upper to the lower *Kamtſchatkoi* fort, and was obliged to wait a new fall of ſnow, as we could not travel upon this ſooty matter.

Nothing extraordinary happened upon this conflagration, except ſome ſmall ſhocks of an earthquake, which were felt both before and after. The great ſhock was about the middle of *December*, which I felt when I went to the upper *Kamtſchatkoi* fort from the Great River. We were then not far from the *Hrepta*, or *Ogulminſky* ridge. When we ſtopped about noon, the diſmal ſound in the woods that we heard at firſt ſeemed as an approaching ſtorm; but our kettles being thrown from the fire, and we ourſelves rocked in our ſledges, we were ſoon convinced of our miſtake. This earthquake had only three vibrations, which ſucceeded each other at about a minute's diſtance.

The mountain of *Kamtſchatka* is higher, not only than the two laſt mentioned, but than any other mountain in that part. Two thirds of its height are made up of rows of hills, as I mentioned, of the *Awachinſky*; the *Shatſe*, or top, making alone one third of its height. The circuit round the bottom of the mountain is near 300 verſts. The *Shatſe*, or top, is very ſteep on every ſide, and has ſeveral deep openings lengthways: the very ſummit

turns

turns gradually breadeſt from the falling in of the earth into the mouth of the burning gulph. It is ſo high, that in a clear day it is to be ſeen from the upper *Kamtſchatkoi* fort, which is about 300 verſts; and one cannot ſee other mountains, the *Tulbatchinſky* for inſtance, although they are much nearer. Before a ſtorm the ſummit appears ſurrounded with three girdles; the higheſt ſeems in breadth about the fourth part of the height of the mountain, from whence ariſes a continual thick ſmoke. The inhabitants ſay, that it throws out aſhes twice or thrice yearly, and ſometimes in ſuch quantities, that for 300 verſts around the earth is covered with them the depth of a verſhoke. From the year 1727 to 1731 the inhabitants obſerved that it burnt almoſt without interruption, but they were not under ſuch apprehenſions as in the laſt conflagration in the year 1737. This terrible conflagration begun the 25th of *September*, and laſted one week with ſuch violence, that to the people who were fiſhing at ſea near the mountain it appeared one red-hot rock, and the flames, which burſt through ſeveral openings, ſometimes ſhewed like rivers of fire with a ſhocking noiſe. Within the mountain were heard thunderings, crackling and blowing like the ſtrongeſt bellows, which ſhook all the neighbouring country: the nights were the moſt terrible. This conflagration ended as uſual, with throwing out a vaſt quantity of cinders and aſhes, of which however little fell upon the land, the whole cloud being almoſt carried by the wind to the ſea. It throws out porous ſtones and glaſs of different colours, which are frequently found in the brook *Boukoſſe*, which riſes out of this mountain. The 23d of *October* following at the lower *Kamtſchatkoi* fort happened ſuch a violent earthquake, that moſt of the houſes and ſtoves were thrown down, the bells of the churches rang, and the new church, which was built of thick balks of larch wood, was ſo much ſhaken that the joinings of the balks were all looſened. Some ſhocks were felt at times until the ſpring of the year 1738; however

/133 however the agitation of the waters was leſs than what had been formerly obſerved. The earthquakes are ſaid to be more violent near a mountain that burns, than near one that has left off burning, or is not quite kindled.

Beſides theſe mountains, I heard of two other gulphs where ſmoke ariſes: one is called *Joupanoſky*; the other, *Shevelitche*; but there are ſeveral places farther north than the river *Kamtſchatka*: ſome of which emit ſmoke, and ſome fire: and there are in the *Kurilſki* iſlands, one upon the *Paromuſir*, and another upon the *Alaide*; concerning which Mr. *Steller* obſerves, that it is only one hill which burns, not a whole ridge; all theſe mountains have outwardly the ſame appearance, and it is, therefore, probable that their contents are much the ſame; that from the external appearance, one may judge of their internal contents, and of their aptneſs to take fire and burn; and that in all theſe which have ſmoked or burned formerly, but have been extinguiſhed, lakes are always found; whence he concludes, that as theſe were burnt down to the bottom, the waters ruſhing through the opened paſſages, filled the empty ſpace; and hence an account may alſo be given of the cauſe of the hot ſprings.

There are two hills which have left off burning; the *Apalſky*, out of which riſes the river *Apala*; and the *Biloutchinſky*, from which comes the river *Biloutchik*. /136 At the bottom of this hill is a lake, where vaſt numbers of herrings are caught in the months of *March*, *April*, and *May*.

CHAP.

CHAP. III.

Of the HOT SPRINGS.

133 [redacted] I Found the following hot ſprings: 1ſt, Upon the river *Oſernoi*, which runs out of the *Kurilſkoy* lake. 2d, Upon the river *Paudche*, which falls into the *Oſernoi*. 3d, Upon the river *Baano*, which is reckoned a branch of the Great River. 4th, Near the fort *Natchikute*. 5th, Near the mouth of the river *Shematchinſki*. 6th, Near the head of the ſame.

Theſe waters, which are upon the river *Oſernoi*, run in little ſprings from the ſouth bank; ſome fall directly into the river: others keep their courſe parallel to the river, and, joining after at ſome diſtance, fall together into the *Oſernoi*. Theſe ſprings are not conſiderable, nor very hot, only raiſing the thermometer (*Farenheit's*) which in the open air was at 45° to 145°.

The ſprings upon the *Paudche* are four verſts and a half diſtant from the firſt, and riſe out of the ground, upon the eaſt bank of the river in an open high hill which has a plain at the ſummit of 350 fathoms * in length, and 300 in breadth. This hill goes in a promontory towards the river, where it makes a a ſteep bank; but on the other ſide the deſcent is eaſy.

Several of theſe ſprings throw out their waters, like artificial water-works, about a foot, or a foot and a half, high, and with a great noiſe. Some of them ſtand in large pools like little lakes, and ſend out ſmall ſtreams, which, joining upon the plain, divide it, as it were, into ſo many iſlands, and at laſt fall in a conſiderable ſtream into the *Paudche*. That little lake marked by the letter ┌ is remarkable for having an opening two fathoms deep.

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* The *Ruſſian* fathom is ſeven feet.

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In the iſland are a great many openings, ſome very ſmall, and others above a foot diameter; but from theſe large openings iſſues no water, though the ſmall ones ſend out ſometimes water and ſometimes vapour with a very great force.

All thoſe places from which formerly iſſued out water, may be known by a various coloured clay which is found round them, for this clay is commonly thrown up by the waters. Sulphur is alſo found there, eſpecially about thoſe openings which emit vapours only.

Some ſprings likewiſe flow from that ſteep bank which we mentioned, two fathoms or more higher than the river. It is remarkable, that the ſtones of which this bank, and perhaps all the hill, is formed, are round, outwardly very dry, but within ſo ſoft that they may be rubbed between the fingers like clay: hence it has been conjectured, that the various coloured clay, which is found about the mouths of the ſprings, is nothing but theſe ſtones ſoftened by the moiſture and heat. The clay in taſte is ſour and aſtringent; and if a piece of it, or a ſtone, is broken, there appears an effloreſcence of alum, like a moſs, with the colours blue, white, red, yellow, green, and black, which are ſo mixed as to reſemble marble; and when the clay is not quite dry, the colours are pretty bright.

Oppoſite to the promontory of the hill is an iſland in the river *Paudche*, where there are likewiſe ſprings of hot water, but ſmaller than thoſe before mentioned.

A more diſtinct idea may be had of theſe hot ſprings from the ſubjoined plan, in which each ſpring is marked with a particular letter, with the different degrees of heat.

/133 *A* TABLE *of the different degrees of heat which were found in each ſpring, by* De l'Iſle'*s and* Farenheit'*s thermometers.*

	De l'Iſle's	*Farenheit's*
The lake at the head of the ſtream Γ	80	116
The eye which is in the corner of that lake	65	134
The little lake into which the ſtream Γ falls	115	74
The ſpring out of which the ſtream 1 runs	50	152
The mouth of that ſtream where it falls into the lake	106	87
The mouth of the ſtream E where it comes out of the lake	95	98
The ſpring of the ſtream 2	20	188
The little lake at the head of the ſtream 3	60	140
In the ſame lake at the mouth of the ſtream 3	80	116
Where this ſtream joins the ſtream 2	93	108
At the head of the ſtream N	10	200
The mouth of this ſtream	55	146
The head of the ſtream K	80	116
Where this ſtream joins the ſtream N	95	98
Where both theſe ſtreams fall into the *Paudche*	110	80

De l'Iſle's thermometer ſtood at this time, in the open air, at 136°, and that of *Farenheit*'s at 49°.

The ſprings which are upon the river *Piaana* are not very different from thoſe of *Paudche*. They riſe upon both ſides of the river; and as upon the ſouth bank there is a high plain, and upon the north a cliff of rocks, the ſprings on the ſouth bank fall into the river in little ſtreams; but thoſe upon the north ſide run along the cliff, except one which riſes about 80 fathoms from the reſt, and where the cliff is more diſtant from the river, which has a courſe of 40 fathoms.

Amongſt

Amongſt the ſprings upon the ſouth bank it is to be remarked, that one place is full of openings of very different diameters, where the water is thrown up two feet and a half with a great noiſe. The thermometer, which in the open air ſtood at 185 degrees, roſe to 15 degrees.

The ſprings of the Great River fall into it in one conſiderable ſtream, which runs between ſtony hills in a narrow channel. The banks are boggy, and the bottom ſtony, covered with moſs. From its ſpring to the place where it falls into the Great River is 261 fathoms. At the ſpring the mercury roſe in *De l' Iſle*'s thermometer to 23, and *Farenheit*'s to 185, degrees; thence to where it falls into the River it grew cooler gradually, ſo that at the mouth *De l' Iſle*'s thermometer only roſe to 115, and *Farenheit*'s to 74, degrees; in the open air the one ſtood at 175, and the other at 14, degrees.

The hot brook, that is near the river *Shematche*, and falls into the Eaſtern Ocean, is much larger than any of the above-mentioned. At its mouth it is three fathoms broad, and in ſome places near four feet deep, and its length is three verſts * and 88 fathoms. It runs between high ſtony hills with a ſtrong current: its bottom is a hard ſtone covered with green moſs, which in ſtill places ſwims upon the ſurface. Near the banks at its mouth, the heat is like that of ſummer water; and towards the head the graſs and plants upon the banks were green and ſome of them flowered in *March*. In going from this river to the laſt hot ſpring that lies upon the river *Shematche* one muſt paſs a great ridge of hills. Upon the eaſt ſide of this ridge, near the ſummit, is an even plain covered with round grey ſtones, without any plants growing upon it. Upon this plain in ſeveral places a vapour aſcends with great force, and a noiſe reſembling the

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* A *Ruſſian* verſt is 500 fathoms, or 3500 feet.

133 bubbling of water is heard. Here I dug, expecting to find water; but I found a ſtratum of ſuch hard ſtone that we could not dig through it. It is probable that the waters of the warm brook, that falls into the Eaſtern Ocean, have their origin from this place, for it is directly oppoſite to the riſe of that brook: and the laſt ſtream that falls into the river *Shematche* is likewiſe thought to derive its ſource from the ſame place, as it riſes from this ridge, upon the weſt ſide, in a deep hollow, ſurrounded with ſmoking hills. The very bottom itſelf is full of boiling ſprings for near a verſt and a half; all which join at laſt in one ſtream.

In this bottom are two large wells, that deſerve particular notice; one is five, the other three fathoms' diameter; the firſt one and a half, the other one fathom deep. In theſe the water boils up with white bubbles, and makes ſuch a noiſe, that one perſon cannot hear another in the common way of ſpeaking; nay, ſcarcely when he cries aloud. The vapour is ſo thick, that one cannot ſee a man at ſeven fathoms' diſtance; and the boiling of the water is only to be obſerved by lying down upon the ground. The earth between theſe wells yields like a bog, ſo that one is in continual fear of ſinking in. The water of theſe ſprings is diſtinguiſhed from all others by a black matter, like *Chineſe* ink, that ſwims upon the top, which ſticks ſo to the fingers that one cannot without difficulty waſh it off. They have, in common with other hot ſprings, clay, lime, alum, and ſulphur, of various colours. In all the above-mentioned ſprings the water is thick, and ſtinks like rotten eggs.

823 The *Kamtſchadales* eſteem all the burning mountains, and
778 places where hot ſprings ariſe, as the habitations of ſpirits, and approach them with fear; but, as the latter are the moſt dangerous, they are under the greateſt awe of them; and therefore they never willingly diſcover them to any *Ruſſian*, leſt they ſhould be obliged to accompany him near them. It was by chance that I heard of them after I had travelled 100 verſts from the

the place; but this natural phænomenon appeared ſo curious that 228
I returned to examine it. The people of *Shematchinſki* village 823
were obliged to declare the true reaſon why they had not formerly diſcovered them, and much againſt their will were forced to ſhew me the place, but would not go near it: and when they ſaw that we lay in the water, drank it, and eat things boiled with it, they expected to ſee us periſh immediately; but when they ſaw this did not happen, they told it in the village as an uncommon wonder, and were aſſured that we muſt be very extraordinary people ſince even the devils could not hurt us.

This is remarkable, that north from the mouth of the river 133
Kamtſchatka, and weſt along the coaſt of the river *Oſernoi*, there are no hot ſprings, although it abounds in *Pyrites*, ſulphur, iron ore, and ſtones that yield alum and vitriol. Mr. *Steller* obſerves, that the appearance of the country of *Kamtſchatka*, and the frequent earthquakes there, give reaſon to think that it is full of caverns replete with combuſtible matter, which taking fire in the bowels of the earth produces earthquakes, and makes thoſe vaſt alterations of which we ſee numerous inſtances in rocky ſhores being torn off both upon the *Beaver* ſea, and in the iſlands which lie between *Aſia* and *America*. The combuſtible matter, he tells us, is kindled by the ruſhing of the ſalt water into thoſe ſubterraneous caverns, through their apertures towards the ſea; which hypotheſis is ſtrengthened by his obſervation that the earthquakes are moſt frequent about the equinoxes, when the waves of the ſea are driven by the great ſtorms with uncommon violence upon the ſhores; and eſpecially about the ſpring equinox, at which time the water always riſes 823
higher than at any other: and the inhabitants of *Kamtſchatka* and the *Kuriles* know this ſo well, that they always fear the beginning of *March* and the end of *September*.

It is very extraordinary, that no iron has been diſcovered here, 135
although ſome ore is obſerved mixed with clay and earth, to which

133/135 which ſulphur being added the ſubterraneous fires may eaſily be accounted for; nor do we yet know of any ſalt ſprings, although the narrowneſs of the iſthmus of the peninſula of *Kamtſchatka*, and ſo many ſubterraneous caverns under the rocky hills which have communication with the ſea, ſhould give us reaſon to conclude that there muſt be ſome.

After the hot ſprings we ought to take notice of the rivers which never freeze. Theſe are ſo common in *Kamtſchatka*, that there is ſcarcely one river which has not ſome very large openings, even in the moſt ſevere froſts; and the plains under the hills are ſo full of ſprings that one cannot go dry any where in the ſummer. Theſe ſprings, which joining make a little rivulet, and fall into the *Kleutchova Kamtſchatka*, never freeze, and yield fiſh almoſt the whole winter, which gives an advantage to the *Kleutchova*, as it furniſhes not only the *Kamtſchadales*, but all the people of the *Oſtrog* of *Niſhniſhantalſky*, with freſh fiſh, which is generally eſteemed, on account of its ſcarcity at that time, as a very great delicacy. This may alſo account for the wholeſomeneſs of all theſe waters, which the inhabitants drink after eating the fatteſt fiſh without the leaſt harm, although, in other places, cold water drunk upon fat fiſh produces the bloody flux.

CHAP.

Nothing plagues the
natives in their huts ſo much as the lice and fleas; the 136
women ſuffer moſt from the former, by wearing very long, 515
and ſometimes falſe hair. Mr. *Steller* was told, that near the 302
ſea is found an inſect that reſembles a louſe, which working
itſelf through the ſkin into the fleſh is never to be cured, unleſs
by cutting the creature intirely out; and that the fiſhers are very
much afraid of them.

It is remarkable that in *Kamtſchatka* there are neither frogs, 136
toads, nor ſerpents. Lizards, indeed, are numerous enough, which 825
the natives look upon as ſpies ſent from the infernal powers for 787
information, and to foretel their death: therefore they are very careful whenever they find them to cut them into ſmall pieces, that they may never carry back news to the power which ſent them; and if it happens that the animal eſcapes alive, it throws them into the greateſt grief and deſpair, as they expect every hour to die, which indeed ſometimes happens from their own fear and deſpondency, and then ſerves to confirm the ſuperſtition to others.

CHAP. XII.

Of the TIDES *in the* Penſchinſka *Sea and Eaſtern Ocean.* 133

IT might perhaps appear ſufficient to ſay, that the tides are agreeable in theſe ſeas to what are obſerved in others; but as I made ſome obſervations which appeared to me new, I think it proper to communicate them.

It is a known rule in general, that the ebb and flood happen twice in the natural day, and that the tides are higheſt about the new and full moon: however, I do not recollect that it has been obſerved that the ebbs and floods are not equal here, or that they

do

do not happen at fixed times, but according to the age of the moon, as I obſerved in the *Penſchinſka* ſea; and if this general opinion be true, that the ebbs and floods in other ſeas are equal, and at fixed hours, then the *Kamtſchatkoi* ſea reſembles only the White Sea, where I am told that there is one high ſpring and one low flood in the ſame day. The laſt the natives call *maniha*; therefore I thought it proper carefully to relate the difference of the tides here, both with regard to the high water and the maniha: for the better underſtanding of which in the original is ſubjoined a long journal, which was kept for three months, and likewiſe the journal of Captain *Elagine*, which was taken at the mouth of the river *Ochotſka*, the *Kurilſki* iſlands, and the haven of *Petropaulauſkay*; which we omit, as it would only be a uſeleſs burthen to the *Engliſh* reader.

Now, in order to be the more intelligible, I muſt obſerve, that the ſea water which flows into the bays does not always run intirely back, but only according to the age of the moon; ſo that ſometimes in the time of ebb nothing remains but the water of the river which is within its own banks, at other times theſe banks are all overflowed with water. All the ſea water runs out about the full and new moon, when the flood follows immediately upon the ebb, and it riſes near eight feet. The flood continues about eight hours, and then it begins to ebb, which continues ſix hours; after which it flows again for three hours, the water not riſing quite a foot; at laſt the ebb begins, which continues ſeven hours, and all the ſea water runs out In this manner are the floods and ebbs regulated for three days after the full and new moon; at the end of which the time of the flowing and ebbing, and height of the flood and ebb, is leſs, the maniha greater, the ſea water which was before ſaid to run all out now remains in ſome part, and as the moon approaches the quadratures, the large tides grow leſs and the maniha greater; ſo that after the ebb of the maniha the greater quantity of water remains ſtill in the bays, and at laſt, at at the quarter moons, what were the high tides change into the maniha, and the maniha into them. I reckon the change of the high tide into the maniha, and of the maniha into the high tide, from the time when one tide begins at midday and the other at midnight; or when it begins to flow or ebb at ſix hours in the morning and ſix in the afternoon.

I ſhall likewiſe communicate the methods that I followed in my obſervations: In the mouth of a river I placed a ſtake, divided into feet and inches of the *Paris* meaſure; the loweſt mark was at the height of the river water in the time of the ebb at the new and full moon. This ſtake I fixed without great trouble, but am obliged to own that I was not able to aſcertain exactly the height of the water in the flood, becauſe it always comes in ſurges, which renders the ſtake wet ſomewhat higher than the true depth; nor can I certainly determine whether the water continues at the ſame height, or not, for any certain time.

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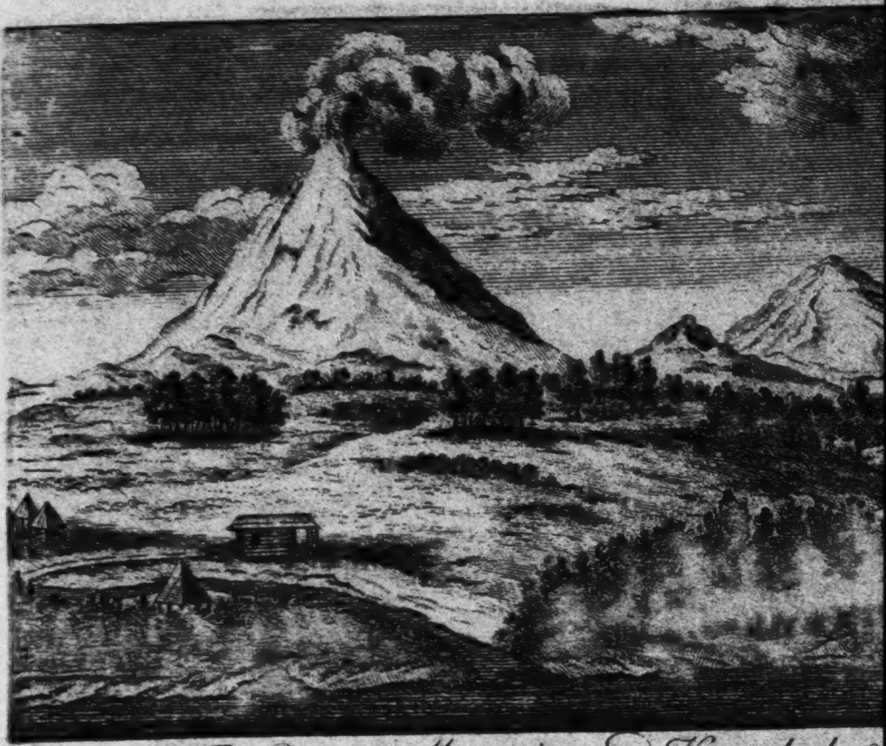

The Burning Mountain named Kamtschatka

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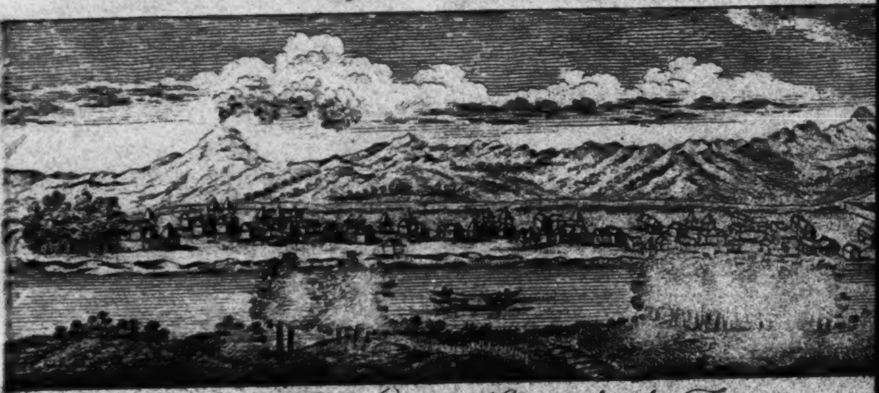

The Lower Kamtschatka Fort. –

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CHAPTER III

THE COUNTRY AND SOMATOLOGY OF THE KAMCHADAL

GEOLOGICAL PAST OF KAMCHATKA

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Professor Obruchev[1] says that at the end of the Miocene Epoch the western shore of Kamchatka was sinking, and Professor Bogdanovich[2] supposes that during the Pliocene Epoch a considerable part of the present western and eastern shores of the peninsula were still covered with water. The beginning of the Quaternary, says Obruchev, evidently formed a continental phase which set in after the sinking phase of the Mio-Pliocene Epochs; the land in Siberia reached its maximum extension; the Bering Strait did not exist as yet, and the Chukchee Peninsula was connected with Alaska, and therefore the northeast of Siberia must have had a milder climate than at present. But all these are geological periods which preceded the appearance of man.

The Pleistocene Epoch, which is associated with the existence of man, may be proved in the valley of the Kamchatka River, according to Bogdanovich, by the frequent occurrence of remains of the mammoth and the *Bison priscus*. But nothing is said about the remains of man. In many places of Siberia man was contemporaneous with the mammoth, but there is a question whether the same was true in Kamchatka. About the end of the Pleistocene Epoch, says Bogdanovich, there was an extensive glaciation in many places of Kamchatka.

These climatic changes do not interfere with our theory of the migration to America of the Siberian-Americanoid tribes, including the Kamchadal, in one of the Interglacial Epochs, and of their remigration to northeastern Siberia after it was released from the ice.

But especially on the Kamchatka Peninsula must it be noted that our theoretical considerations are proved by archæological evidence.[3] No artifacts of the palæolithic man were discovered by the author on Kamchatka, and it is possible that no man lived during the old stone age on the Kamchatka Peninsula. It remains, however, for the future to prove or disprove it. In order to clear up my doubts in this respect I communicated with my friend the Russian geologist, Professor I. P. Tolmachoff, now curator of the Department of Invertebrate Palæontology of the Carnegie Museum, Pittsburgh, Pennsylvania. He is well known by his explorations in northeastern Siberia. He writes that it is hardly proper to conclude that man lived in the Kamchatka River valley in the Pleistocene Epoch on the only ground that remains of mammoth and *Bison priscus* were found there. Mammoth and man very often were neighbors but, as it seems, this dependence

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[1] W. A. Obruchev, *Geologie von Sibirien*, Berlin, 1926.

[2] Karl Bogdanovich, *Geologische Skizze von Kamtschatka*, Petermann's Mitteilungen, Band 50, 1904, pp. 66, 196, 217.

[3] Waldemar Jochelson, *Archæological Investigations in the Aleutian Islands*, Pub. No. 367, Carnegie Inst. Wash., 1925. *Idem*, *The Ethnological Problems of Bering Sea*, Natural History, Jour. Amer. Mus., Jan.–Feb., 1926, vol. xxvi, No. 1, pp. 90–95.

133 was not necessarily mutual. Man might follow the mammoth in order to hunt
172 him, but the mammoth had no need of man. Thus the remains of mammoth do not indicate that man lived in the same place, if there is no direct proof of it. However, the presence of the mammoth may postulate to climatic conditions fit for man to live in, and it remains for the future to find remains of the palæolithic man; but for the time being one may be right to hold to the theory of the peopling of Kamchatka in Recent Times, especially since no palæolithic artifacts were discovered in my excavations, and I feel authorized to say that the late peopling of Kamchatka may corroborate the theory of the reemigration of the Siberian Americanoids from America after the last glaciation subsided. To be fair, however, I must add that I had no time to make excavations in the Kamchatka River valley and that no regular excavations were made in the territory of the other Americanoids—the Koryak, Chukchee and Yukaghir.

GEOGRAPHY AND ADMINISTRATIVE DIVISIONS

131 The country of the Kamchadal—or the part of the Kamchatka Peninsula to the
631 south, from the Amanino village to the west, and Osernaya River to the east—was a part of the Primorskaya Province. In 1909 a new province of Kamchatka was
R. created, which included 6 districts: Okhotsk, Gishiginsk, Anadyrsk, Chukotsky,
177.63 Commandor Islands and Petropavlovsky. The last district is the territory of the Kamchadal. The city of Petropavlovsk was made the capital of the province and the seat of a newly appointed Governor.

162 The former Territory of the Kamchadal is inhabited by 8,037 people, of which 3,370 are Russians, 3,555 Kamchadal, 802 immigrated reindeer Koryak and Tungus and 300 Chinese, Koreans and Japanese. There were also 10 Europeans and Americans.[1]

177 The Kamchadal have become Russianized and only the inhabitants of seven
197 villages (between Amanino and Sopochnoye) of the western coast have preserved their native language—the western dialect of the Kamchadal language—and the inhabitants of the village Sedanka on the Tighil River speak the northern dialect. There were formerly four Kamchadal dialects, and at present even the Kamchadal, who speak two dialects, use more of a Russian-Kamchadal slang than the pure Kamchadal. The younger generation is learning Russian in the schools, and soon the Kamchadal language will be forgotten entirely, as was the case with the dialect of the Kamchatka River and with the southern dialect, which was spoken between the Great River (Bolshaya Reka) and Lopatka Cape. While the northern dialect of the Kamchadal on the Tighil River contains many Koryak words, the southern dialect had an intermixture of Kurilian words. Krasheninnikoff called the southern Kamchadal people Kurilians.

177 The Kamachdal had been and still remain a genuine fishing tribe. They
226 did not adopt from their Koryak neighbors the reindeer, although they were

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[1] According to official data of 1911. During the summer fishing season, Kamchatka's shores have many thousands of temporary dwellers. Russians who operate canneries and salteries bring thousands of laborers. The number of Japanese fishers at the time of my stay in Kamchatka was estimated at more than 10,000. About 250 Japanese schooners were lying near the shores and about ten Japanese steamers were coming from and leaving for Japan. According to the convention concluded after the Russian-Japanese War the Japanese were authorized to fish everywhere in Kamchatka waters except bays and river-mouths, but by bribing the guards they used to fish also in the inner waters.

hunting the wild Kamchatka variety of reindeer.

000 consisted of myself, Mrs. Jochelson as assistant and physician to the party, and eleven laborers, of whom seven were Russians, three Kamchadals and one Japanese.

133 The Osernaya River, with its slanting bed, rocky banks, rapid falls and curves, forms a most difficult and dangerous route of travel. We had two boats and two canoes. One of the boats was for Mrs. Jochelson and myself; the other carried the tents, instruments, food and other supplies. The canoes served for reconnaissance and errands requiring despatch. It was very difficult to make progress on the turbulent river, particularly on the way up. Several times we had to disembark and carry our freight on our shoulders, while the boats were pulled by ropes through the rapids. (See Plate 5, figs. B, C.)

136 While there are no human habitations anywhere in the country, we were amazed to find well-beaten paths in the forests and on the mountains above the river, as if there were numerous human settlements. But realizing that these were roadways made by bears, we walked cautiously amid the dense vegetation with rifles ready for action. We did not see any bears while following these paths, but we heard the breaking and cracking of bushes and tree branches, and on the ground we found pieces of fresh salmon, the remnants of the bears' meals. The animals are very nervous and easily become alarmed. They have sufficient reason to be afraid of a man with a gun.

It is well known that at Lake Kuril and in its vicinity scores of bears are to be found. The abundance of fish and of many kinds of berries furnishes them ample food and favors their increase in number. The sparsity of human population is also favorable to the multiplication of the bears, although the few hunters of the coastal villages annually kill them by the hundreds.

133 After five days of painful effort we finally reached our destination. It was a
515 windy day and our frail boats nearly capsized on the stormy lake, which is surrounded by the peaks of extinct volcanoes and by steaming hot sulphurous springs,
757 the temperature of which reaches 100° C. (210° F.) and more. From our boat we observed steaming springs on the banks of the Osernaya when nearing the lake, but we had no time to stop to investigate them. We were told that the Kamchadal from Yavino and the Russians from Osernaya dig pits by the hot springs for bathing and curing different diseases. The temperature in these baths is reduced to 50° or 40° C.

136 From the head of the Osernaya River I directed my fleet to the Siwusk Cape (see map of Kuril Lake and Plate 5, fig. A). While excavating there we were entertained every day by the sight of bears fishing and gathering berries, particularly when we increased our field of observation by the use of opera glasses. The bears stood with their hind legs in the mountain rivers and creeks, and with their front paws managed to throw out on the banks the sea salmon, which in order to spawn ascend the rivulets that flow into the lake. The bears went after their prey and eating off the heads and spines, which are the most palatable parts of the fish, cast away the remainder. Their movements, turning, leaping and jumping, were so amusing that we could not restrain our laughter.

000 My laborers were anxious to hunt bears, but I could not allow them to go on such an undertaking as the time was short and a Government steamer was expected on a certain date at the mouth of the Osernaya River to take my party to Petropavlovsk. However, I once allowed two of them to go for a night hunt and they secured a little bear cub. They cooked and ate the meat.

On the morning of our contemplated departure from Lake Kuril, when all the specimens found in the excavations had been packed, the lids of the boxes nailed down and the boats loaded, I was tempted to linger just a little longer upon seeing two she-bears playing with their cubs on the other side of a pond in the rear of the promontory. I accordingly delayed my departure until the afternoon, and singling out two of the best marksmen from my party, and equipped with a stereoscopic camera and a motion-picture camera, I started in the direction of the bears. We had to undress in order to cross the Etamenk River in the rear of the promontory, and to carry on our heads the bundles of clothing, the rifles and the cameras, so that they might not get wet. We reached the other bank of the river, dressed ourselves, and tried to pass as noiselessly as possible through the little jungle which led up to the open meadow where the she-bears were playing with their cubs.

We stopped on the outskirts of the forest and put up the cinema and stereoscopic cameras. As the bears were still too far away, I told one of my two men to make a circuit about them and frighten them from the rear so that they might come nearer to us. Both cameras were in readiness to take pictures, when suddenly at a distance of about thirty yards appeared a young black bear quietly passing by. I quickly took a stereoscopic snapshot and was about to start with my cinema, but the bear became frightened by the clatter of the falling shutter of the photographic camera and, instead of running away, rushed in our direction. We had no choice but to aim at his head and fire as he neared the camera.

After ascertaining that the bear was dead, we looked around. None of the other bears were to be seen; they had been frightened by the shooting and had disappeared. As I could not remain on the lake any longer, I had to give up the idea of another attempt to approach bears with peaceful intent. The bear that was killed appeared to be not more than three or four years old. I took the skin and the meat of a hind leg for the laborers.

We returned to our camp late in the day and were compelled to spend one more night on the promontory. Next morning, our archæological mission fulfilled, we started our journey to the sea.

172 The proceedings and results of the excavations were as follows: I selected for
digging the ancient village site on a cape or rather a small peninsula in the south-
● 133 western part of the lake. The Kamchadal call this cape Siwusk (see map of the
136 lake). The village was located on the rocky extremity of the cape and on its
slope near the small inner lake. The extremity of the cape rises over the lake
about 16 meters. The sides of the inner lake which join the cape with the main-
land are about six feet wide. From both sides of the cape two small mountain
rivers empty into the lake.

rivers empty into the lake. They are rich in migrating salmon, which ascend the Osernaya River from the Okhotsk Sea to the lake for spawning in dense masses and attract numerous bears roaming the country.

Eighteen pits were dug—15 on the rocky hill and 3 below, where our tents are to be seen on Plate 5, figure 1. The general depth of the culture layers was about 3 feet. The pits under the hill were larger and seemed to be more ancient than those on the hill. No iron objects were found, but they yielded numerous pottery fragments, with handles inside, but no ornamentation. The pits were located mostly on the eastern slope of the hill, over a steep standing rock, and the outer margins of the pits seemed to have fallen down. The angles of the pits were somewhat smoothed; originally, however, the pits seemed to be quadrangular in shape, with the sides from 24 to 30 feet long. On the top of the cape was one pit of larger dimensions, probably that of a communal house for gatherings and festivals; this pit yielded a small quantity of objects; the greatest number of artifacts were furnished by the smaller pits. The following artifacts were found in the pits of the Kuril site:

(1) Nine arrow points (2959–2967) of quartzite and flint, the longest being 141 mm. (Plate 6, A).

(2) Twenty obsidian arrow points (2968–2987) (Plate 6, B). The greatest length was 80 mm. and the smallest 18 mm.

(3) Seventeen stone knives and other implements (2988–3004). The largest implement was 72 mm. in length (Plate 7, figs. 1–17).

(4) Twelve stone scrapers (3005–3016); the largest was 93 mm. in length (Plate 7, figs. 18–29).

(5) Twelve stone scrapers and other implements (3017–3028), the greatest length being 97 mm. (Plate 8, figs. 1–12).

(6) Eleven stone implements (3029–3039), some of them not finished. The greatest length was 100 mm. (Plate 8, figs. 13–23).

(7) Fragments of stone implements (3040).

(8) Forty-nine stone scrapers (3041–3089).

(9) Thirteen bone awls (3090–3102) Plate 12, figs. 1–13).

(10) Thirteen bone arrow heads (3103–3115) (Plate 12, figs. 14–26).

(11) Eight bone ornaments and other objects (3116–3123).

(12) Five bone implements (3124–3128) (Plate 13, figs. A).

(13) Fragments of bone implements (3129).

(14) Six fragments of bone implements (3130–3135) (Plate 13, fig. B).

(15) Four stone lamps (3136–3139) (Plate 14, figs. 4–7).

(16) Three stone lamps (3140–3142) (Plate 14, figs. 1–3).

(17) Three stone lamps (3143–3145) (Plate 14, figs. 4–6).

(18) Remnants of weaving (3151–3152).

(19) Pottery fragments of different pits (3153).

(20) A pottery fragment; the whole height of a pot (3154).

(21) A stone lamp; the first stage of manufacture (3157).

(22) Figure 66. A stone lamp of andesitic lava in process of manufacture (3158), 4/9 natural size.

(23) A pottery fragment from Pallan. A gift from the Governor of Kamchatka (3159).

(24) Three stone lamps (3165–3167) (Plate 15, figs. 1–3).

(25) Five stone lamps (3160–3164) (Plate 15, figs. 4–8).

(26) Seven stone axes (3168–3174). The largest is 197 mm. long (Plate 9, figs. 1–7).

(27) Twelve stone axes (3175–3186). The greatest length is 152 mm. (Plate 9, figs. 8–19). One of these specimens is illustrated in the text-figure 59 (3183). It is a rudely chipped adze of quartz schist, with a blade polished on both sides. Length, 122 mm.; greatest width, 25 mm.

(28) Four stone sinkers (3187–3190) (Plate 10, figs. 1–4).

(29) A stone sinker (3191) (Plate 10, fig. 7).

(30) Two stone sinkers with holes (3192, 3193) (Plate 10, figs. 5, 6).

172 (62) Not finished blade, evidently intended to be subsequently elaborated into an implement of a specialized type. It might also serve as a scraper. Of greatly silicified slate. Length, 98 mm.; greatest width, 50 mm.; greatest thickness, 28 mm. (3029). Text-figure 57.

(63) A scraper of dark gray flint; one side is flat with some chippings from one edge; the other side is regularly convex with broad chippings. The working edge is rounded. Length, 41 mm.; greatest width, 26 mm.; thickness 9 mm. (3075). Text-figure 58.

(64) A stone lamp of sandstone with an ear for tying it to the sledge or canoe when traveling or hunting. 4/9 natural size (3140). Text-figure 64.

(65) A stone lamp for the dwelling, of porphyrite, 1/3 natural size (3141). Text-figure 65.

● 133 As stated above, we left the Kuril Lake on August 16—a quiet calm day. We crossed the lake, on the right being the rocky almost triangular Alaid Island,
823 where millions of birds were crying and rioting. The Japanese writer R. Torri[1] refers to a Kurilian tradition, according to which in ancient times a high mountain rose where we have now the Kuril Lake. It was a handsome lady, and the neighboring summits, jealous of her, made her life unbearable by mockery and sneering, so she decided to leave Kamchatka and settled in the open sea. This became a small rocky island, Alaid (in Aino, Chachakotan), located to the northwest of the Paramushiri Island, and Kuril Lake formed in the cavity. Baron Dittmar refers to another variant of the Kamchadal tradition concerning the origin of the Kuril Lake. There was formerly a volcanic summit Alaid, which disliked its location and wandered over to the sea. In the cavity left by the mountain, the Kuril Lake originated. The mountain, however, left a piece of rock in the middle of the lake which the Kamchadal call Heart-Rock or Navel-Rock. Kuril Lake, according to Dittmar, is the second greatest lake of Kamchatka, Kronotzkoye Lake being larger.[2] Geologists explain the origin of the Kuril Lake by the sinking of an old crater. The lake now lies 200 meters above sea-level and its depth in some places reaches 300 meters.[3]

000 The trip back to the seashore took us less than a day. Our boats were speeding and leaping over the rocks of the stony bed of the Osernaya River so that we had to use poles as brakes in order not to be overturned, particularly on the dangerous curves. Hunters, who come in spring on dog sledges to the Kuril Lake to kill bears, make quite primitive boats of twig-frames covered with bear skins in order to transport skins to the mouth of the Osernaya River. These skin-boats easily glide over the rocky rapids.

As I feared, the Government steamer had left for Petropavlovsk a day before we reached the shore. It did not stop at Osernaya, passing from the western strait to Petropavlovsk through the Kuril Strait. The fall storms had begun in the Okhotsk Sea and it was dangerous for the steamer to approach the coast, which has no harbor. We might have had to remain in Osernaya for the winter if it had not been for the administrators of the saltery and cannery, who were waiting for a special steamer before closing the plants. They had already sent off on a freight steamer the imported laborers and salted and canned goods. On the next day the

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[1] Torii, *Études Archéologiques et Ethnologiques: Les Aïno des Iles Kouriles*, Journal College of Science, Imperial University of Tokyo, vol. XLII, Tokyo, 1919-1921, p. 29.

[2] Carl von Dittmar, *Travels and Sojourn in Kamchatka in 1851-1855*, Part I, St. Petersburg, 1901, p. 684 (in Russian).

[3] See *The Kamchatka Expedition of F. P. Riabouchinsky*, Zoological Division, Part I; P. J. Schmidt, Moscow, 1916, *The Investigations of the Zoological Division in Kamchatka in 1908-1909*, Chapter XII, written by Dr. A. N. Dershavin, one of Professor Schmidt's assistants.

[P.91]

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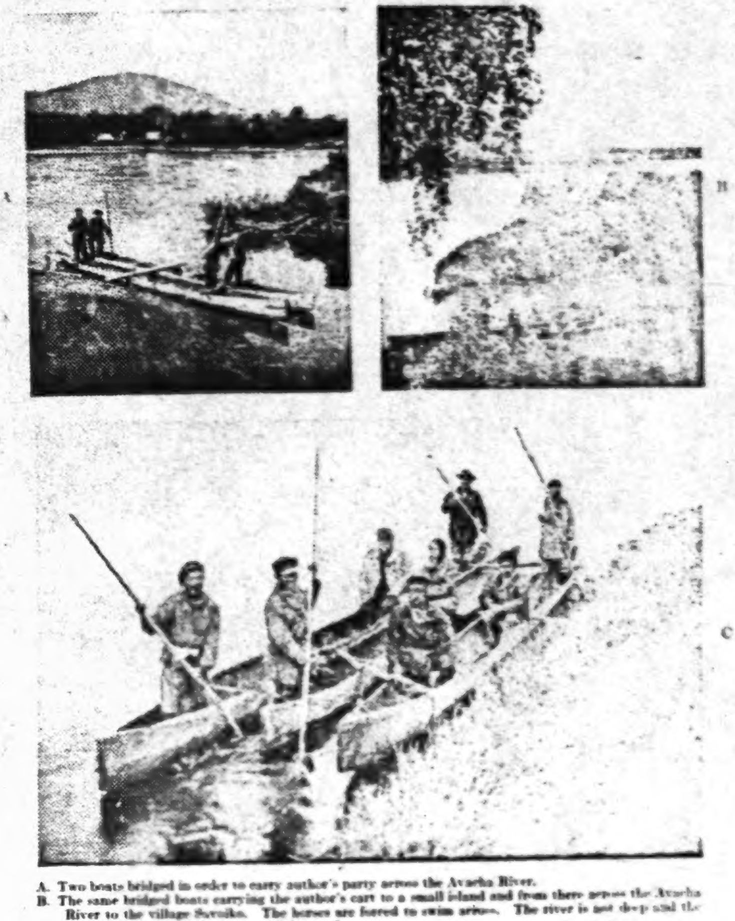

A. Two boats bridged in order to carry author's party across the Avacha River.
B. The same bridged boats carrying the author's cart to a small island and from there across the Avacha River to the village Seroiko. The horses are forced to swim across. The river is not deep and the laborers are punting the boats with long poles.
C. Three bridged boats carrying the author's party and laborers from the mouth of the Tigil River to its tributary, the Kulki River. The laborers are punting the raft along the bank.

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133

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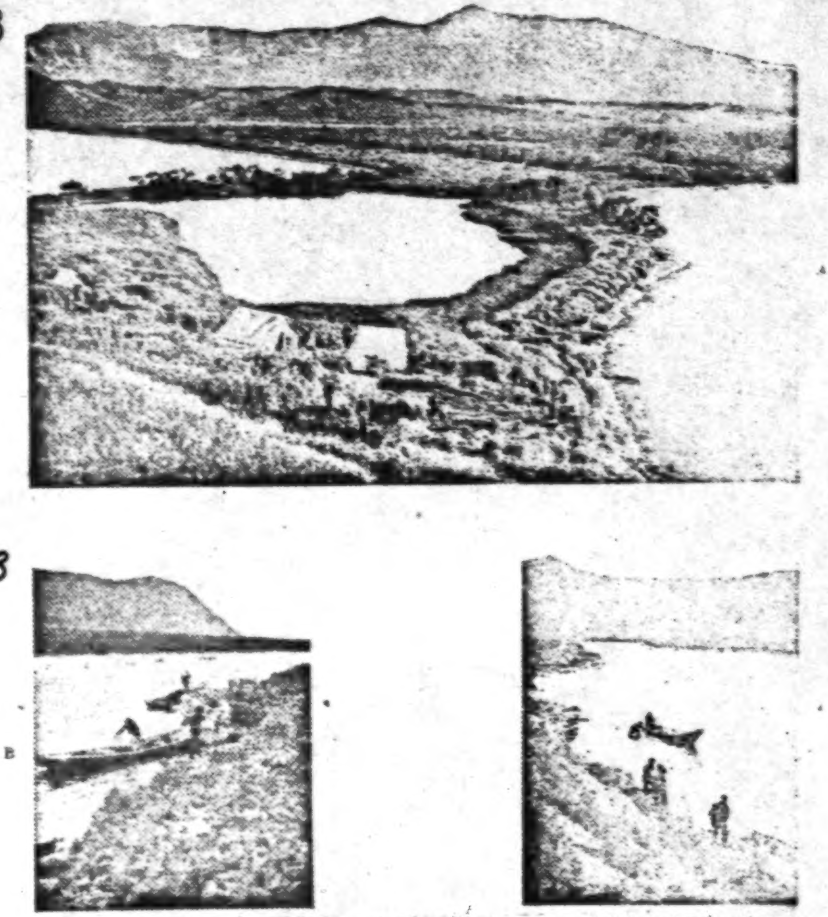

A. Inner pond on Cape Siwuch in Kuril Lake. In the foreground is the author's camp and the digging of two pits. (See p. 56.)
B. Unloading the boats, preparatory to ascending the rapids of the Ozernaya River.
C. When rapids were encountered, the occupants of the boat disembarked and pulled at the ropes instead of the oars.

000 ing, and we were treated with the utmoſt hoſpitality; but we had ſcarcely entered when the rain fell in ſuch abundance, that we were obliged to ſtay longer than we wiſhed.

I eagerly embraced this ſhort interval to deſcribe ſome of the objects which I had deferred till my arrival at Bolcheretſk, where, perhaps, I may find others that will not be leſs intereſting.

361
164
133 The oſtrog of Paratounka is ſituated by the ſide of a river of that name, about two leagues from its mouth*. This village is ſcarcely

Peter and St. Paul; but this cannot take place till the projected improvements reſpecting the port are carried into execution. We cannot help obſerving, that the Engliſh have omitted to mention that there was formerly a church at St. Peter and St. Paul's, and that its ſituation is known by means of a ſort of tomb which formed a part of it.

* This river empties itſelf, as I have already ſaid, into the bay of Avatſcha. The ſhoals, which are commonly

361 ſcarcely more populous than that of St.
164 Peter and St. Paul. The ſmall pox has,
133 in this place particularly, made dreadful ravages. The number of balagans and iſbas ſeemed to be very nearly the ſame as at Petropavloſska*.

342 The Kamtſchadales lodge in the firſt du-
R ring ſummer, and retreat to the laſt in
177 .34 winter. As it is thought deſirable that

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dry at low water, render its entrance impracticable; it is even difficult at high water.

* As I ſtood to examine the Kamtſchadale houſes, I frequently imagined to myſelf the diſdainful ſurpriſe that our French Sybarites would expreſs at the ſight, ſome of whom are ſo proud of their vaſt hotels, and others ſo jealous of their little neat and decorated apartments, where the art of arrangement ſcarcely falls ſhort of the refined luxury of ſuperb furniture. I conceived them to exclaim—How can human beings live in theſe miſerable huts! A Kamtſchadale however, is by no means unhappy in theſe cabins, whoſe architecture ſeem to lead us back to the firſt age of the world; he lives there with his family in tranquillity; he enjoys at leaſt the happineſs of knowing few privations, and of having therefore leſs wants, and has no objects of envious compariſon before his eyes.

they

7:Lesseps T-3 (1787-88)1790 Kamchadal

000 of bears, who are attracted by the fiſh with which theſe rivers abound. The inhabitants aſſured me, that fifteen or eighteen were frequently ſeen together upon theſe banks, and that whenever they hunted them, they were ſure to bring back one or two, at leaſt, in the ſpace of twenty-four hours. I ſhall ſoon have occaſion to ſpeak of their chace, and their weapons.

133/501 We quitted Paratounka and reſumed our journey; twenty horſes ſufficed for ourſelves and our baggage, which was not conſiderable, M. Kaſloff having taken the precaution of ſending a great part of it by water, as far as the oſtrog of Koriaki. The river Avatſcha has no tide, and is not navigable farther than this oſtrog; and not at all indeed, except by ſmall boats, called *batts*. The baidirs only ſerve to croſs the bay of Avatſcha; and can proceed no farther than the mouth of the river, where

133/501 their lading is put into theſe batts, which, from the ſhallowneſs and rapidity of the water, are puſhed forward with poles. It was in this manner our effects arrived at Koriaki.

000 As to ourſelves, having croſſed the river Paratounka at a ſhallow, and winded along ſeveral of its branches, we left it for a way that was woody and leſs level, but which afforded us better travelling; it was almoſt entirely in valleys, and we had only two mountains to climb. Our horſes, notwithſtanding their burthens, advanced very briſkly. We had no reaſon to complain of the weather for a ſingle moment; it was ſo fair, that I began to think the rigour of the climate had been exaggerated; but ſhortly after, experience too well convinced me of its truth, and in the ſequel of my journey, I had every reaſon to accuſtom myſelf to the moſt piercing froſts, too happy when

000 it ſeemed ſufficiently ſheltered, the wind penetrated on every ſide. M. Kaſloff had recourſe to the bath, which quickly reſtored him; but not daring to follow his example, I was obliged to wait the arrival of our baggage. The damp had penetrated to ſuch a degree that I ſhivered during the whole night.

133 The next day I made a trial of theſe
515 baths, and can ſay that none ever afforded
312 me ſo much pleaſure or ſo much benefit.
343 But before I proceed, I muſt deſcribe the ſource of theſe hot waters, and the building conſtructed for bathing.

They are two werſts to the north of the oſtrog[1], and about a hundred yards from the bank of the Bolchaia-reka, which it is neceſſary to croſs a ſecond time in order to arrive at the baths, on account of the elbow which the river deſcribes below the village. A thick

and

[Natchikin (Nachiki?)--Analyst]

133 and continual vapour aſcends from theſe
515 waters, which fall in a rapid caſcade from a
312
343 rather ſteep declivity, three hundred yards
from the place where the baths are erected. In their fall, which is in a direction eaſt and weſt, they form a ſmall ſtream of a foot and half deep, and ſix or ſeven feet wide. At a little diſtance from the Bolchaia-reka, this ſtream is met by another, with which it pours itſelf into this river. At their conflux, which is about eight or nine hundred yards from the ſource, the water is ſo hot that it is not poſſible to keep the hand in it for half a minute.

M. Kaſloff has been careful to erect his building on the moſt convenient ſpot, and where the temperature of the water is moſt moderate. It is conſtructed of wood, in the middle of a ſtream, and is in the proportion of ſixteen feet long by eight wide. It is divided into two apartments, each of ſix

133 or ſeven feet ſquare, and as many high:
312 the one which is neareſt to the ſide of
515 the ſpring, and under which the water is
343 conſequently warmer, is appropriated for bathing; the other ſerves for a dreſſing-room; and for this purpoſe there are wide benches above the level of the water; in the middle alſo a certain ſpace is left to waſh if we be diſpoſed. There is one circumſtance that renders theſe baths very agreeable, the warmth of the water communicates itſelf ſufficiently to the dreſſing-room to prevent us from catching cold; and it penetrates the body to ſuch a degree, as to be felt even for the ſpace of an hour or two after we have left the bath.

We lodged near theſe baths in a kind of barns, covered with thatch, and whoſe timber work conſiſted of the trunks and branches of trees. We occupied two, which had been built on purpoſe for us, and

000 ber, and the 16 was ſpent in the hurry and buſtle which the laſt preparations generally occaſion. The reſt of our route, as far as Bolcheretſk, was to be upon the Bolchaia-reka. Ten ſmall boats, which properly ſpeaking, appeared to be merely trees ſcooped out in the ſhape of canoes, two and two laſhed together, ſerved as five floats for the conveyance of ourſelves and part of our effects. We were obliged to leave the greater part at Natchikin, on account of the impoſſibility of loading theſe floats with the whole, and there were no means of increaſing them. We had already collected all the canoes that were in the village, and even ſome of our ten had been brought from the oſtrog of Apatchin, to which we were going.

133/137 The 17, at break of day, we embarked upon theſe floats. Four Kamtſchadales, by means of long poles, conducted our rafts. But

133/137 But they were frequently obliged to place themſelves in the water, in order to haul them along; the depth of the river in ſome places being no more than one or two feet,
000 and in others leſs than ſix inches. Preſently one of our floats received an injury; it was preciſely that which was freighted with our baggage, and we were obliged to unlade every thing upon the bank, in order to refit it. We waited not, but preferred leaving it behind, in order to proceed on our route. At noon another accident, much more deplorable for men whoſe appetites began to be clamorous, occaſioned us a further delay. The float in which our cookery was embarked, ſunk all at once before our eyes. It will be ſuppoſed we did not ſee the loſs which threatened us, with indifferenc; we were eager to ſave the wreck of our proviſions; and for fear of a greater misfortune, we wiſely reſolved to dine before we proceeded any farther. Our din-

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7:Lesseps T-3 (1787-88)1790 Kamchadal

000 ner ſeemed gradually to diſpel our fears, and gave us courage to diſcharge the water which over-loaded our boats, and to reſume our voyage. We had not advanced a werſt, before we met two boats coming to our aſſiſtance from Apatchin. We ſent them to the ſuccour of the damaged fleet, and to ſupply the place of the boats which were unfit for ſervice. As we continued to advance at the head of our embarkations, we at laſt entirely loſt ſight of them; but we met with nothing diſaſtrous till the evening.

133/137 I obſerved that the Bolchaia-reka, in the windings which it continually made, ran nearly in the direction of eaſt-north-eaſt and weſt-ſouth-weſt. Its current is very rapid; it appeared to me to flow at the rate of five knots an hour; in the meantime the ſtones and the ſhoals which we met with every inſtant, obſtructed our paſſage

133 ſage to ſuch a degree, as to render the la-
137 bour of our conductors truly painful. They avoided them with aſtoniſhing addreſs, but as we approached nearer the mouth of the river, I obſerved with pleaſure that it became wider and more navigable. I was equally ſurpriſed to ſee it divide into I know not how many branches, which united again, after having watered a variety of little iſlands, of which ſome are covered with wood. The trees are every where very ſmall and very buſhy; we met with a conſiderable number growing here and there in the very river itſelf, which increaſe ſtill farther the difficulty of the navigation, and prove the careleſſneſs, I may ſay the ſloth, of theſe people. It never occurs to them to root out theſe trees, and thus open a more eaſy paſſage.

136 Different ſpecies of water-fowl, ſuch as ducks, plovers, goëlands, divers, and others, divert

contributed to make us paſs a moſt comfortable night.

133/361 The next day we fitted ourſelves out early and without difficulty. We arrived in four hours at Apatchin, but our floats could not come up as far as the village, on account of the ſhallowneſs of the water. We landed about four hundred yards from the oſtrog, and atchieved this ſhort diſtance on foot.

This village did not appear to me ſo conſiderable as the preceding ones, that is, it contained perhaps three or four habitations leſs. It is ſituated in a ſmall plain, watered by a branch of the Bolchaïa-reka; and on the ſide oppoſite to the oſtrog is an extent of wood, which I conceived might be an iſland formed by the different branches of this river.

7:Lesseps T-3 (1787-88)1790 Kamchadal

361 I learned by the way, that the oſtrog of Apatchin, as well as that of Natchikin, had not been always where they are at preſent. It is within a few years only that the inhabitants, attracted without doubt by the ſituation, or the hope of better and more commodious fiſhing, removed their houſes to this place. The diſtance of the new oſtrog from the former one is, as I was told, about four or five werſts.

133 Apatchin afforded nothing intereſting. I left it to join our floats, which had paſſed the ſhallows, and were waiting for us three werſts from the oſtrog, at the ſpot where the branch of Bolchaïa-reka, after having made a circuit round the village, returns again to its channel. The farther we advanced, the deeper and more rapid we found it; ſo that nothing impeded our courſe the whole way to Bolcheretſk, where we arrived at ſeven o'clock in the evening,

accom-

The Bisteraïa, another very rapid river

133/361 and larger than the Bolchaïa-reka, joins it to the weſt, about the diſtance of half a werſt from Bolcheretſk. It loſes its name at the conflux, and takes that of the Bolchaïa-reka, which is rendered very conſiderable by this addition, and empties itſelf into the ſea at the diſtance of thirty werſts.

We landed at ſeven o'clock in the evening at a little hamlet called *Tchekaſki*. Two iſbas, two balagans, and a yourt almoſt in ruins, were all the habitations I could perceive. There was alſo a wretched warehouſe, made of wood, to which they give the name of magazine, becauſe it belongs to the crown, and firſt receives the ſupplies with which the galliots from Okotſk* are freighted. The hamlet was built as a guard to this magazine. We paſſed the

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* When theſe galliots are obliged to winter here, they harbour in the mouth of a narrow and deep river, which pours itſelf into the Bolchaïa-reka, about fifty yards from the hamlet, higher up.

000 tended to the ſouth. It appeared to be about two werſts from us, ſouth of the entrance of the Bolchaïa-reka. At the point of land juſt mentioned, we diſcovered the light houſe, and the cot of the perſons appointed to guard the wreck: unfortunately we could only ſee all this at a diſtance. The direction of the river, from the place where it empties itſelf into the ſea, appeared to me to be north-weſt, and its opening to be
133 half a werſt wide. The light-houſe is on
361 the left coaſt, and on the right is the continuation of the low land, which the ſea overflows in tempeſtuous weather, and which extends almoſt as far as the hamlet of Tchekafki. The diſtance of the hamlet from the mouth of the river is from ſix to eight werſts. The nearer we approach the entrance, the more rapid is the current.

It was not poſſible to purſue our voyage; the wind became ſtronger, and the waves

increaſed

000 increaſed every moment. It would have been the height of imprudence to quit the ſand bank, and croſs, in ſuch foul weather and ſuch feeble boats, two werſts of deep water, which is the width of the bay formed by the mouth of the river. The governor, who had already met with ſome proofs of my little knowledge of navigation, was very anxious however to conſult me upon this occaſion. My advice was to tack about, and return to the hamlet where we had ſlept; which was executed immediately. We had great reaſon to be pleaſed with our prudence; ſcarcely were we arrived at Tchekaſki when the weather became terrible.

133 I conſoled myſelf with the idea, that I had at leaſt obtained my end, which was to ſee the entrance of the Bolchaïa-reka. I can aſſert with confidence, that the acceſs to it is very dangerous, and impracticable

to

133 to ſhips of a hundred and fifty tons burthen. The Ruſſian veſſels are too frequently ſhipwrecked, not to open the eyes both of navigators who may be tempted to viſit this coaſt, and of the nations who may think of ſending them.

The port, beſides, affords no ſhelter. The low lands with which it is ſurrounded, are no protection againſt the winds which blow from every quarter. The banks alſo which the current of the river forms, are very variable, and of courſe it is almoſt impoſſible to know with certainty the channel, which muſt neceſſarily, from time to time, change it direction as well as its depth.

We paſſed the reſt of the day at Tchekafki, being unable to proceed to the ſhipwrecked veſſel, or to return to Bolcheretſk. The ſky, inſtead of clearing up, became covered on all ſides with ſtill blacker and thicker

000 After a few bad nights, ſleep at laſt overpowered
me, and I was inſenſible to all
noiſe. By degrees I became ſo inured to
the cries of theſe animals, that I could repoſe
in the midſt of them in perfect tranquillity.
231 I ſhall mention in this place, that
the dogs are only fed once a day, at the end
of their journey; their repaſt conſiſts commonly
of a dried ſalmon diſtributed to each
of them.

133 The oſtrog of Malkin is ſimilar to thoſe
361 which I have already deſcribed. It contains
five or ſix iſbas and a dozen balagans,
is ſituated upon the border of the Biſtraïa,
and ſurrounded with high mountains. I
had no time to viſit the hot ſprings that are
ſaid to be in this neighbourhood, the waters
of which are ſtrongly impregnated with
ſulphur; and one in particular, iſſuing from
the declivity of a hill, forms at the bottom a
baſon of tolerably clear water,

000 iſſuing from the mountains, and uniting at this place to pay their tribute together to the Kamtſchatka. Neither of them was frozen, which I aſcribed to the extreme rapidity of their current. The ſpot where we paſſed them was truly pictureſque; but the moſt ſingular object was the numerous firs that ſkirted theſe rivers, and which ſeemed like ſo many trees of ice. A thick hoar-froſt, occaſioned perhaps by the dampneſs of the place, covered every branch, and gave to the whole a bright and chryſtalline appearance.

133 At ſome diſtance from Tolbatchina we croſſed a heath, from which I could perceive three volcanos; none of them threw up any flames, but merely clouds of very black ſmoke. The firſt, which I before mentioned in going to Machoure, has its reſervoir in the bowels of a mountain that is not exactly of a conical ſhape, the ſummit being flattened and but little elevated.

This

133 This volcano, I was informed, had been at reſt for ſome time, and was ſuppoſed to be extinguiſhed, but it had lately kindled again. North-eaſt of this is a peak, the top of which appears to be the crater of a ſecond volcano, which continually throws up ſmoke, though I could not perceive the ſmalleſt ſpark of fire. The third is north-north-eaſt of the ſecond; I could not obſerve it as I wiſhed, a high mountain intercepting almoſt entirely my view. It derives its name from the village of Klutcheſſkaïa, near which it is ſituated; and I was told that we ſhould paſs cloſer to it hereafter. The two other volcanos are called in like manner after the oſtrog of Tolbatchina, where we arrived in good time. This village is upon the Kamtſchatka, forty-four werſts from Chapina, but it contains nothing extraordinary. We were informed
5 85
177 that there had been a Kamtſchadale wedding in the morning. I regretted the not

000 Kreſtoff, towards the village of Klutcheſkaïa, which is thirty werſts from it.

The weather, which, ſince our departure from Apatchin, had been very fine, though cold, changed all of a ſudden in the after-
133 noon. The ſky became clouded, and the wind, which roſe in the weſt, brought us a heavy ſnow. It extremely incommoded us, and prevented me from examining as I could have wiſhed, the volcano of Klutcheſkaïa, which I had ſeen at the ſame time with thoſe of Tolbatchina. As far as I could judge, the mountain that carries it in its womb, is conſiderably higher than the other two. It continually throws up flames, which ſeem to aſcend from the midſt of the ſnow, with which the mountain is covered to its very ſummit.

361
563
R
177 Upon the approach of night I came to
.24 the village of Klutcheſkaïa. The inhabitants

000 We ſlept at this village, and ſpent a conſiderable part of the next day there, from the apprehenſion of a hurricane, which, it was ſaid, threatened us. We were at laſt relieved from our fears, and though it was tolerably late when we reſolved to proceed, we reached Drannki, which is thirty werſts. The ſituation of this oſtrog is ſimilar to the preceding one. Here we found M. Haus, a Ruſſian officer: he came from Tiguil, and brought M. Kaſloff various objects of natural hiſtory.

133 We left Drannki at break of day. In the afternoon we croſſed a bay that was fifteen werſts wide, and from twenty-five to thirty deep; the entrance was ſcarcely leſs than five werſts: it is formed by the ſouth coaſt. This coaſt is low land, gradually declining as it advances into the ſea. The bay runs weſt-north-weſt and eaſt-ſouth-eaſt. It appeared to me that weſt-north-weſt of its entrance, towards Karagui, veſ-

ſels

7 Lesseps T-3 (1787-88)1790 Kamchadal

133 ſels may ſafely anchor, and be ſheltered from the ſouth, the weſt, and the north winds: The ſouth of its entrance does not afford ſo good a harbour, as it is ſaid to have various ſand banks; I was obliged to truſt to report, the ice and the ſnow preventing me from obtaining any better information.

361
631 We travelled this day ſeventy werſts, and came in the evening to Karagui, which is upon an eminence, and affords a view of the ſea. It has only three yourts and twelve balagans, at the foot of which the river Karaga paſſes. This river pours itſelf into the ſea at the diſtance of a few gun ſhots from the oſtrog, which is the laſt in the diſtrict of Kamtſchatka; a hamlet a hundred werſts farther, and containing but few Kamtſchadales, not being included within its limits.

As we were obliged to wait here for a

000 On the afternoon of August 4th, we weighed and left the port of Hakodadi in Yezo, northward-bound for Kamschatka. We dipped our farewells to old friends of H.M.S. *Champion* and *Zephyr*, and steamed out against a fresh easterly breeze. As we proceeded the wind increased, and the weather became so thick that we resolved on running in under the lee of Cape Siwokubi, and anchoring for the night. Next morning it was clear, though still blowing strong from E.S.E.; but as we were anxious to lose no time, we put the ship under fore and aft canvas, and beat under steam and sail past Cape Yerimo, the southern point of Yezo, into the open sea. The Kurosiwo or Japanese current—the Pacific homologue of the Gulf Stream—widening as it passes the eastern coast of Japan, runs northward as far as Kamschatka, and it is to its warmth that the comparative freedom from ice of that coast is supposed to be due. Between it and the Kurile Islands is a narrow counter-current of cold water, running to the S.W. With the intention of avoiding the latter, and obtaining what advantages we could from the Kurosiwo, we resolved on shaping our course so as to keep at a uniform distance of about a hundred and fifty miles to the eastward of the Kuriles, where the current is supposed to be strongest. The result, however, was a failure. For the first two days we experienced a north-easterly set, but we had no sooner got fairly out into the presumed middle of the Kurosiwo than we encountered a southerly current. At the same time we entered the region of fog, which, during the summer, is an almost constant phenomenon of the northern part of the North Pacific. This fog apparently formed a stratum of no great depth, for, although thick enough all round us, it was often sufficiently clear overhead to enable us to get a glimpse of the sky, and although morning sights were impossible, we were always able to get a meridian or ex-meridian observation for our latitude.

133 Navigation in these lonely and misty seas presents but few points of interest even to the sailor, and it was accordingly with no little pleasure that, on the morning of the 13th of August, we

133 emerged from the fog much as a train runs out of a tunnel, and found that Kamschatka was in sight. The sharp peak of the Vilutchinska volcano enabled us to make out our position, and we steered north for Avatcha Bay. It was a magnificent morning, and as the yacht rolled heavily over a dark blue sea, on whose surface the waves broke in patches of snowy whiteness, now plunging her bows deep into the water with all the sense of pure physical enjoyment of a living creature, now shaking herself free and pouring the seas in bright streams from her scuppers, she formed a picture which might have aroused the admiration of even the most apathetic of landsmen, and one which was provided with a fitting background. Rarely have I seen a wilder-looking coast than that of south-eastern Kamschatka. The brilliant sunshine which poured upon rock and headland redeemed it from gloom, but the wildness and desolation of the scene was indescribable. Precipitous cliffs, at the foot of which none but a bird could land; deep valleys running down to the sea at whose mouths still lay the accumulated masses of last winter's snows; pinnacle rocks like rows of iron teeth shown to warn off any one rash enough to contemplate a landing,—this was what met our gaze as we anxiously scanned the coast with our glasses. Beyond, the land rose in abrupt humps and irregular masses, and appeared to be clothed with a uniform growth of low, but dense underwood, above which the distant cones of snow stood out clear and hard against the sky. It was an impracticable-looking country enough, but we had visited it with the firm intention of going through it, and experience in other lands having taught us how often difficulties disappear upon a closer acquaintance, we did not allow ourselves to feel discouraged. An hour or two later we arrived at the narrow entrance of Avatcha Bay, and shaped our course over a smooth sea for the little harbour of Petropaulovsky.

Avatcha Bay is one of the finest harbours in the world, if not actually the finest. Rio and Sydney have no mean claims for this position of honour, but those of us who had seen both were

133 unanimous in awarding the palm to their Kamschatkan rival. A nearly circular basin of some nine miles in diameter, and with a narrow entrance opening to the S.S.E., it is roomy enough to accommodate the navies of the world. It is entirely free from dangers, has an even depth of ten or twelve fathoms, and owing to its affording excellent holding ground and being well protected from all winds, it is perfectly safe in all weathers. But the ordinary traveller will be struck not so much with its nautical excellencies, as with the superb scenery with which it is surrounded. To the south rises the Vilutchinska volcano, now quiescent, a graceful cone of about 7000 feet; and a little farther eastwards a huge flat-topped mass, exceeding it in height by a thousand feet or more, obtrudes itself as a rare exception to the rule of cone-shaped mountains which seems to obtain throughout the country. It is nameless in the charts, for we are in the land of volcanoes, and it is only 8000 feet in height! On either hand on entering are the two secondary harbours Rakova and Tareinska—the latter nearly five miles in length—and within them again are others on a still smaller scale. Nature here at least has treated the mariner right royally. The iron-bound coast without may be as bad a lee shore as any skipper need wish to see, and the Pacific Ocean may too often belie its name, but here he can rest quietly, and sleep *sur les deux oreilles* until such time as he weighs anchor for the homeward voyage.

But if the southern part of the bay is fine, it is difficult to find words to describe the beauty of its upper portion. We look north, and the scenery on which we have just turned our backs is forgotten, for there, shoulder to shoulder, their vast fields of snow glittering in the sun, stand a trio of volcanoes such as one rarely sees. From the summit of Avatchinska, the centre peak, a delicate streamer of white vapour floats out horizontally, sharply defined against the blue of the clear northern sky. So closely do these mountains seem to hedge in the bay, that it is hard to realise the fact that they are twenty miles distant. But in Kamschatka the

133 scenery is on a large scale, and a reference to the chart explains the matter in five figures.[1]

Mr. Frederick Whymper, in his "Travel and Adventure in the Territory of Alaska," has given an excellent illustration of this group of mountains. Koriatska, to the north and west, stands alone. Avatchinska and Kozelska are somewhat less lofty, the former being close upon nine thousand feet; while the latter is, according to different observers, either 5328 or 9054 feet[2] in height. Such a discrepancy can only be accounted for by the supposition that Avatchinska should be credited with the latter figures. During Mr. Whymper's visit in 1865, Koriatska alone emitted smoke, the others being apparently extinct; but in the month of June, ten years previously, Mr. Tronson found Kozelska in action, sending forth dense volumes of smoke, and covering the surface of the water with ashes.[3] Since then there do not appear to have been any eruptions, and in spite of the white pennant floating at the peak, the grand old mountain looks calm and peaceful enough, guarding the lonely stretches of forest and tûndra at its base.

000 It is only with an effort that one withdraws one's gaze from the exquisite beauty of mountains such as these. What is it that influences us so deeply in the sight of those eternal snows? In what lies that wondrous charm that we experience only in the regions of the north? After many years of travel I think that there is one scene which has, perhaps, remained more vividly stamped upon my memory than any other—a placid river in northern Lapland, down whose stream I floated, drinking in the perfect beauties of the changing autumn. Amid all the mass of scarlet and gold that hung above the mirror-like surface of the water not a single leaf was stirring,—not a sound was to be heard.

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[1] The height of Koriatska is 11,554 feet.

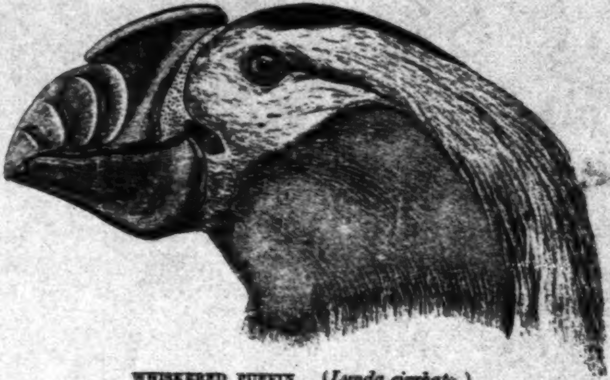
[2] Tronson,—"Voyage of the *Barracouta*," p. 109.

[3] From the fact that Mr. Tronson appeared to consider Avatchinska and Koriatska as one and the same mountain, and gave an erroneous height for Kozelska, it seems far more probable that it was the first-named volcano that was really in eruption at the time of his visit.

000 Before us lay the peaks of dazzling snow, and it seemed as though all Nature were hushed and worshipping at that throne of spotless purity.

Rest and purity then—the unattainable, in other words—in these lie the charm. The fairest tropic scene holds no deeper meanings such as these. Beauty of form there doubtless is, a far greater beauty perhaps than that of northern climes, but, after all, it is but soulless. The teeming life of a tropic forest, the marvellous wealth of vegetation, the reckless sacrifice of the weakest, produce upon the mind the same effect as do the streets of a crowded city. No grandeur of "calm decay," no pathos of the changing seasons is here. It is a fierce struggle for existence, fatal to any except the most purely material thought.

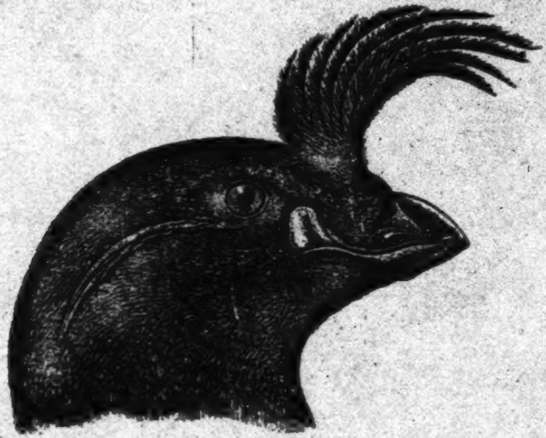
136



WHISKERED PUFFIN. (*Lunda cirrhata.*)

133/137 The shores of Avatcha Bay extend to the traveller a more smiling welcome than the iron-bound coast outside. Here, the lower hills slope gently down to beaches dotted with driftwood, or, covered with birch and heather, steeply overhang the sea. Behind they are backed by higher ranges clothed with undergrowth, and rising to the height of fifteen hundred feet or more. To the north-west only is this basin-like appearance broken, where the small

133 Paraminka and Avatcha rivers have formed a delta with innumer-
137 able mouths. Low ground also intervenes between the three great
volcanoes and the bay, but the height of the mountains annihilates
136 the distance. Hardly a sign of human habitation is to be seen, but
the calm surface of the water is broken by quantities of water-fowl,
whose nesting-places are the steep rocks at the entrance of the bay.
Most noticeable among them are the Whiskered Puffins (*Lunda
cirrhata*), and the still quainter-looking Tufted Auks. The little

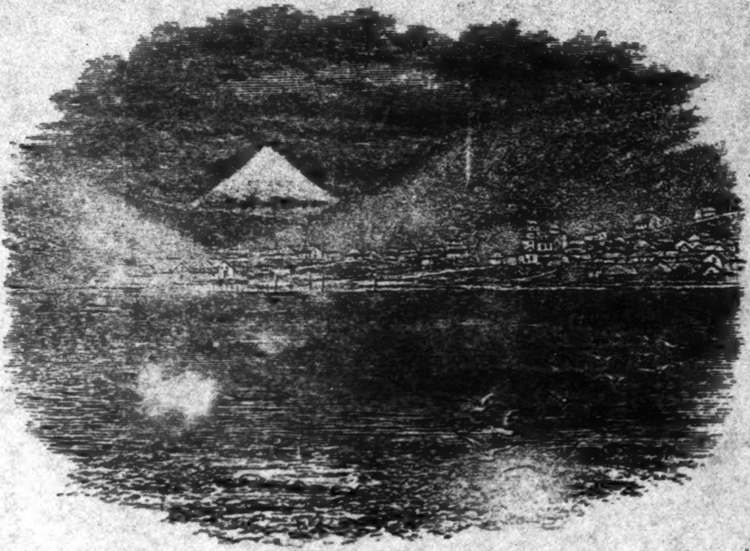


TUFTED AUK. (*Simorhynchus cristatellus.*)

133 village of Petropaulovsky is invisible, hidden behind a steep promontory forming the western boundary of its harbour. What an admirable harbour it is from a sailor's point of view can best be seen by a glance at the engraving. From the end of this promontory a shoal extends nearly to the other shore, but leaves a channel deep enough for ships of the largest draught. Within this again a sand-spit,—so straight, so narrow, and so regular in form, that it is hard to believe that it does not owe its existence to the hand of man,—runs out from the opposite shore to within a stone's throw
000 of the promontory. We steam in steadily towards the land; to an

361 houses may be reckoned at about one-third of that number. Kittlitz,
161 in 1829, found the settlement to number about two hundred inhabitants, and at the time of our visit we were informed that there were over three hundred; a number that I should myself be inclined to think overstated.

133 Standing on the now deserted sand-spit,—the natural breakwater
361 of the harbour,—the view of the little town and its surroundings is strikingly picturesque. To the left is the wooded promontory, the scene of the unfortunate disaster which occurred to the forces of the Allied Fleet in 1854. On the right a hill of some fifteen hundred feet dominates the town, whose log huts are clustered around the shores of the little bay. Here and there a white-painted house of greater pretension strikes the eye, and a stunted grove of trees shelters the church, and the graveyard studded with Russian crosses. Behind the town, artistically filling in the gap



PETROPAULOVSKY HARBOUR.

133 between the hills, rises the snowy cone of Koriatska; and the store-
361 house of the Alaska Commercial Company, painted the dull Indian
103 red that is so favourite a shade throughout Sweden, forms a
609 pleasing patch of colour in the foreground. It did not take us long
to make acquaintance with Petropaulovsky, in spite of its imposing
name. The inhabitants, we found, called it Petropaulsk, and, in
short, showed every disposition to make things easy for their
visitors. Salmon and bilberries were sent off to us, and, on our
remarking upon the presence of cows, a supply of cream and
441 butter was not long in following. Society here is limited, the
643 Europeans being but eight or ten in number. Mr. Lugobil, the
563 local head of the Alaska Commercial Company, resides here, and
712 superintends the shipping of the sealskins from Bering and Copper
R Islands; as does Captain Hunter, the cheery agent of Phillippeus
and Company, another firm of fur-traders. Of stores (the American
177 term is in use here) there are but two. One of them was owned
.64 by a kindly old Swede, who also acted in the capacity of Mayor.
He had not visited his native land for thirty years, and it was
evidently a source of the keenest pleasure to him to talk of it to
one of us who knew it, and loved it almost as much as he did himself.
The town is now no longer a military post, and the barracks
and fortifications, razed to the ground by the English in 1855, have
never been rebuilt. The entire authority is vested in the Ispravnik,
whom, in spite of the exigencies of his profession, we did not find
averse to the seductions of trade. A Russo-American Jew, better
known as the King of Kamschatka, of whom the Russian Government
was extremely anxious to get rid, completed, with Dr.
Dybowski, the list of Europeans of the sterner sex. The ladies
were only four in number.

757 With Dr. Dybowski, who has acquired a European fame as a
115 naturalist, it was a pleasure to make acquaintance. His life had
R been an eventful one. Imprisoned in Siberia for some time for taking
177 part in the Polish insurrection, he had eventually been pardoned
.75 and made government doctor of Kamschatka, in which capacity he

231 *Rien n'est sacré pour un sapeur.* Raw hides, boots, and even babies,
136 it is said, occasionally vary his diet!

To our ship's crew Petropaulovsky appeared little less than a
paradise. The bright sunny weather and clear cold nights were a
pleasant change after the heat of the tropics, and the forecastle
mess was furnished with many unaccustomed delicacies. The
136 harbour and rivers teemed with fish; periwinkles *à discrétion* were
137 to be had for the picking, and milk and bilberries were abundant.
The whiting and herrings were, however, left in comparative peace,
owing to the ease with which salmon were to be obtained at the
mouths of the Avatcha and Paraminka rivers. On one occasion
no less than three hundred of these fish were obtained at one haul
of the seine, and the crew occupied themselves in salting, smoking,
000 and otherwise preserving the spoil. Jack was in his element, and
doubtless would not have objected to passing the rest of his life in
such a fascinating spot. Our shooting excursions to various parts
of the bay were much enjoyed by the boats' crews, and the forward
part of the ship began ere long to be ornamented with bearskins
that the men had obtained by purchase or barter from the natives.
Meanwhile we had been making arrangements with the Ispravnik,
and the individual I have before mentioned under the title of the
King of Kamschatka, for the ponies that were necessary for the
first part of our journey; but, as there was some delay in getting
133 together the requisite number, a party of us started to visit the hot
springs of Kluchi,[1] which lie some few miles from the shore on the
other side of the bay. Excepting during strong south-easterly
winds, which send a somewhat heavy swell into the entrance, the
passage across is generally pleasant enough even in small boats.
Though blocked with ice in the winter, the bay is, we understood,
but rarely frozen right across, although the harbour of Petropaulovsky
is, of course, closed for some months. Landing in a bay
north-west of the entrance to Tareinska Harbour, we passed through
an extensive birch-forest, and emerged at length on the shores of a

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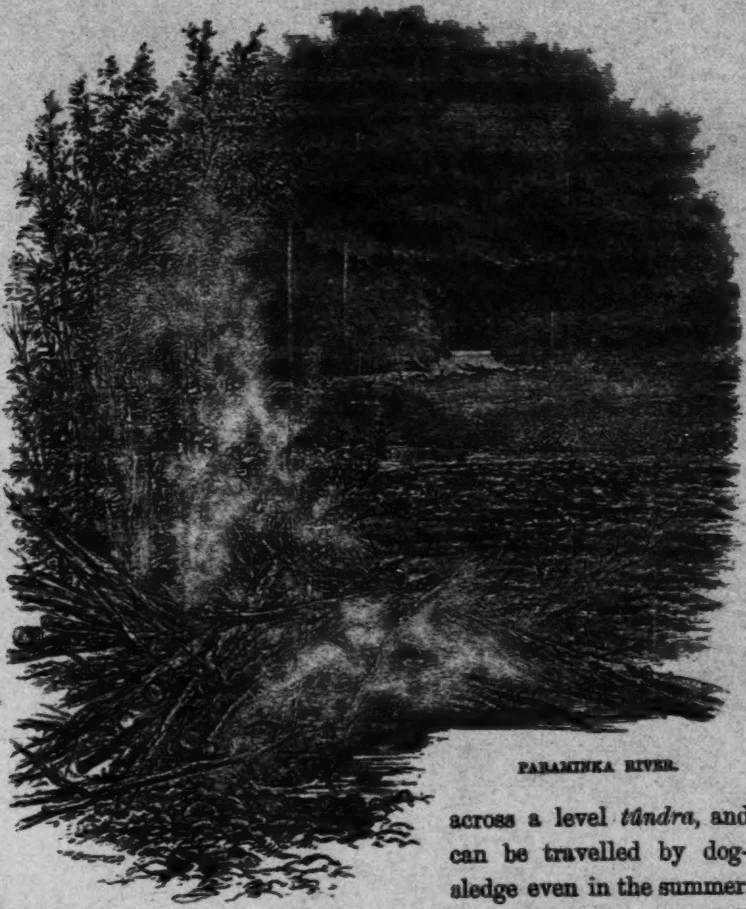
[1] Kluchi, I believe, is the Russian word for springs.

133 picturesque lake, across which we were conveyed in dug-out canoes
515 to a small village on the opposite shore. From here the road lies
757
across a level *tûndra*, and can be travelled by dog-sledge even in the summer. Kluchi itself is a small village composed of a few log-built huts and balagans, but, with its background of the Vilutchinska volcano, is prettily situated. It stands in an open valley, in which some attempts at cultivation are made. The hot springs—the steam from which is visible at some



PARAMINKA RIVER.

133 distance—have a temperature of about 108° Fahr., and appear to be
515 nearly devoid of sulphur. They are much resorted to by the natives
757 for cutaneous and other disorders, and have huts built over them for bathing purposes, thanks to the orders of the Ispravnik. Near the village runs a branch of the Avatcha River, down which our party paddled to the sea; and on arriving at the yacht we were pleased to learn that most of the horses had been brought into the settlement, and that there was every prospect of our starting on our long-planned expedition through the interior in the course of a couple of days.

492 convenient in this kind of travelling is avoided. A thick layer of bearskin was placed over the saddle-cloth, and effectually prevented sore backs. Our personal gear, enclosed in bags made from the skin of the hair-seal, was easily adjusted, but the photographic apparatus and other breakable objects required more care and time,
133 and it was noon before we were fairly off. We bade adieu to our
487 friends, and passed out through the narrow gap at the back of the village towards a small lake of brackish water which hems it in to the north. Here at one time stood the hospital mentioned in Captain Cook's "Voyages," but no trace of the building now remains. Circumventing the lake, we struck off to the north-west and, before long, the track, which had never been very well marked, became obliterated. Our path led through a rough but picturesque country, dotted here and there with stunted birches, and we steered across it for a certain point in the landscape recognised by our guides. By our side trotted one of the most ornamental members of the expedition, whom I have hitherto neglected to introduce—Verglaski, a magnificent bear-dog belonging to Jacof, of an aspect almost as solemn as his master. Our horses had hitherto gone fairly well, but during a short halt that we made to adjust some of the packs a stampede occurred, and in an instant the scene was changed to one of the wildest confusion. Kicking, plunging, colliding against trees, and dashing wildly in all directions, it was not long before the horses succeeded in disembarrassing themselves of their loads, and the ground presented the appearance of having been recently passed by a beaten army in full retreat. The horseboys, more than half drunk, pursued the fugitives, cursing volubly in Russian and Kamschatdale; while we, to whom these little unpleasantnesses of packhorse travel had not even the merit of novelty, lit our pipes resignedly and proceeded to gather up the fragments. It was a full hour ere we were again *en route*. These incidents, "tedious as a twice-told tale," and trying alike to the temper and the baggage, recurred again and again. We progressed, as it were, by a series of stampedes, and our horseboys became almost as erratic in their locomotion as their charges.

[of Petropavlovsk--Analyst]

137/133 locomotion as their charges. At this rate of advance our journey's end seemed distant indeed. We pressed on, however, as well as we could, and crossed a small plain from which the base of the Avatchinska group of volcanoes was visible to our right. Their summits were hidden in thick mist, and the weather, which had hitherto been fine, now looked most threatening. Arriving at a small stream, Vodki and his two companions halted, and declaring that there was no water farther on, proceeded to unload the horses. This we soon put a stop to, and telling them that, water or no water, we had no intention whatever of camping for another hour or more, we resumed our journey. The scenery now changed, and we entered a gloomy birch-forest with much thick undergrowth. This was in places six or eight feet, or more, in height, and was composed of coarse grass and giant umbelliferæ, with an occasional blue monkshood, varied in the more open parts with large patches of yellowing bracken. Before long we reached another stream, and were thus enabled to prove the truth of our surmises; but it was not till some time later that we finally halted for the night, the horseboys being by this time scarcely in a condition to proceed farther. We were glad to pitch camp and get a rest, as it had already begun to rain. Before turning in we succeeded in finding Vodki's brandy bottle, but it was perfectly empty. The man had disposed of a pint or more of raw spirit since leaving the settlement!

712 R 177 .71 In this kind of travel movement is not very rapid for the first day or two until every one has shaken down to his work, and on the following morning we were nearly three hours in getting breakfast and striking camp. The horseboys were depressed and inclined to be penitent. If, like an old Kafir servant of mine, they estimated the amount of enjoyment of the previous night by the strength of the morning's headache, they ought, to all appearances, to have been well pleased. We had decided to leave Avatcha on our left, and to make for Stari-ostrog,[1] a small village a little higher up the Avatcha River, and forty versts from Petropaulovsky.

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[1] The *ostrogs*, or small forts, were erected by the Russians in bygone days as a protection against the natives at the time of the first settlement of the country. The name now alone remains, all traces of fortification having long since disappeared.

000 among them was no trace of Cook. Presently we came upon
that imperturbable gentleman, placidly smoking a cigarette. He
explained the matter in a few words:—"Very sorry, sir, but"
(indicating the horse) "I've never been shipmates along o' one of
them things before!"

133 We crossed the river in two dug-out canoes lashed together.
136 These boats are as a rule small, and without attempt at elegance
501 in shape, such as one sees in Borneo and other parts of the Malay
Archipelago. Where the rivers are shallow, long poles are used to
propel them, and indeed the natives always seem to prefer this
implement to the paddle, wherever its use is possible. The Avatcha
River is here about eighty yards in breadth; shallow for the most
226 part, but with a centre channel about seven feet deep. It appeared
to be teeming with salmon. Stari-ostrog, situated on the right
251 bank, consists of ten huts and a large number of fish-drying sheds.
262 The long Kamschatkan winters, during which it is difficult to
361 procure food of any kind, and the consequent necessity of fish as
an article of diet for almost every living creature in the settlements
—the cows and horses even not excepted—create a need for a very
large number of these buildings; and the consequence is that, to
the eye of the new-comer, the villages appear very greatly larger
than they really are. Scanty as the population of this wild country
is, the amount of salmon annually consumed is absolutely enormous.
At this little village, for instance, we were told that, during the
season, 20,000 fish would be no uncommon catch for a single day!
Here, however, owing to there being no other settlements higher
up the river, they are permitted to stake the stream right across
from bank to bank, and the number of fish thus obtained may
probably be in excess of that in other places. The labour expended
in gathering so abundant a harvest is, of course, very considerable,
and during the season the inhabitants work day and night to get
in a sufficient supply for the winter.

563 We were greeted by the headman and brought to his house,
where we were regaled with milk, sour cream, coarse rye bread,

[Avacha--Analyst]

000 were to pay seven roubles each. The Ispravnik and the King had not done badly; their charge had been exactly quadruple!

226/251 In company with our English-speaking friend we went to inspect the fish. These were drying in open sheds, much as tobacco is dried in the Southern States of America. Split in half as far as the tail, cleaned, washed, and deprived of its head, the salmon is hung across a stick in company with fifty or sixty others. These sticks are then placed a few inches apart, with their ends resting upon other poles which run from end to end of the shed. The fish are thus freely exposed to the air, but protected from the sun. They are not hung lower than about eight feet from the ground, on account of the dogs, who are occasionally seen gazing at them with longing eyes and watering mouths, experiencing the tortures of Tantalus. Excepting for a sledge-dog, however, the sight is not a tempting one. Swarming with countless millions of maggots, which distil in a gentle but unceasing rain upon the ground beneath, whitening it as with a shower of powdery snow, the fish seem to be so rapidly disappearing that one wonders how any remain till winter. Another sense beside that of sight causes the same reflection, but neither the dogs nor their masters are particular as to these little matters. The latter, indeed, prefer their fish in an advanced stage of decomposition, and have the same method of preparing it as I have seen in some parts of Lapland. The salmon are buried for three or four months in pits, and any difficulty in extracting them at the end of that time is overcome by means of a ladle!

133/137 It was late in the afternoon before we were again *en route*, our course lying north-west through the valley of the[1] river. This bears in many places distinct evidence of the latter having been, at some period, of very much larger size. We then ascended the bluff of the old left bank, and rode through an interminable forest of birch-trees, which were here larger than I have ever seen them elsewhere. Many of them must have been at least a hundred feet in height.

000 We began the next day with a more than usually exasperating

[Avacha--Analyst]

435 price, but this animal does not exist in any numbers in the peninsula. The most valuable skin of all is that of the sea-otter (*Enhydra lutris*), which is becoming rarer year by year. A good pelt of this animal will bring even the native hunter as much as a hundred roubles, while in the European market a perfect one has been known to realise £120!

133/137 On the morning of August 22d we came for the first time to a *tûndra* of considerable size. After the gloom of the birch-forest these vast stretches of level ground have a most exhilarating effect. The feeling of oppressive stillness which but an hour or two before seemed to weigh upon us like a nightmare, disappeared as if by magic, and pushing our horses into an easy canter, we pursued our way with a sense of freedom that is rarely or never felt except by those who ride where fancy leads them over the level surface of an uncultivated plain. The melancholy, the *niedergeschlagenheit* of Kamschatka, of which Kittlitz gives such a long description in his account of the country, I confess I never felt: the converse—a purely physical feeling of delight in mere existence—we often experienced, and a good rollicking drinking song and a loose rein seemed a necessity in order to let off our stock of superabundant spirits. Long wastes of almost orange-coloured grass stretched away nearly to the horizon, only broken here and there by a still pool, or flecked by little tufts of snowy cotton-grass. Our
132 course—for we were on what a native would doubtless call the
487 "high road" to Narchiki—was marked out by long poles, some fifteen or twenty feet in height, which in winter serve to guide the traveller over the dreary wastes of snow. In the forest another method is adopted. The trees are "blazed" by a vertical slit cut in the bark by the hunter's axe. This gapes with the growth of the tree and forms a conspicuous oval mark, ten or twelve feet above the ground—a height which forcibly impresses upon the mind the depth of the winter snow. Other evidences which told us that the warm sun beneath which we were travelling was an affair of days, not weeks, were close at hand, for the snow lay in thick patches

132 at the base of the low range of hills bounding the plain,—the finger-marks, as it were, of the icy grip of winter.

231 361 We reached Narchiki early in the afternoon, and were greeted by the prolonged howls of innumerable dogs. Though the village boasts of only six huts, there are over one hundred and fifty of these animals to pull the sledges of the inhabitants by day, and to endeavour, in combination with other equally hungry, though happily smaller creatures, to disturb their rest by night. The sledge-dog, indeed, appears to do without sleep, and anything more hideous than their nocturnal concerts it would be difficult to imagine. Fortunately an open-air life and hard work are not generally compatible with insomnia, and after a few nights the traveller would be more apt to miss his music than to abuse it.

133 136 226 Narchiki is placed on a little branch of the Avatcha River, which is here not more than eighteen inches deep. Standing upon its banks we began for the first time dimly to realise the vast numbers of fish which must annually visit the country, and which may be said literally to choke its rivers. Hundreds were in sight, absolutely touching one another; and as we crossed the river our 136 226 horses nearly stepped upon them. Their back fins were visible as far as we could see the stream, and aground and gasping in the shallows, and lying dead or dying upon the banks, were hundreds more. The odour from these decaying fish was distinctly perceptible at a distance of a couple of hundred yards or more. In weight these salmon varied from seven to fifteen and even twenty pounds. They were for the most part foul fish,—blotchy with patches of red and white, and of the kind known by the Russians as the Garbusa;[1] but others in fair condition were to be found, and with a little trouble I was able to pull out three good ten-pound fish in as many minutes with a gaff. Any other method of fishing would have been useless. It would have been nearly impossible to make a cast without foul-hooking a fish, and nine-tenths, or more of them, were in an uneatable condition. Had we wished to do so, we

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[1] *Salmo proteus* of Pallas.

000 sewn together. They admitted enough light, however, to show us
the strange mixture of ornament that hung upon the walls. In the
corner was the usual tawdry *eikon*, and facing it, a long array of
clippings from the "New York Police News," full of the choicest
262 horrors of battle, murder, and sudden death! Amid these lively
136 surroundings we consumed our sour milk and bilberries, and
224 bargained for some potatoes and turnips, which appeared to be
241 grown here in some abundance. Much, no doubt, might be done in
the way of agriculture in many parts of the country were it not that
the fish-harvest and hunting take up so much of the peasants' time.
Of their success in the latter line we had evidence in a fine pair of
horns of the Argali or Bighorn,[1] which lay outside the hut, and had
only recently been shot. These animals, we were told, are not
easily obtained at this season, and do not exist in any great
numbers in the neighbourhood; but in the winter they descend to
the lower spurs of the mountains, and are more easily brought to
000 bag. We much desired to obtain a head and skeleton of this
sheep, but our limited time, and Afanasi's statement that we
should be able to get them on the sea-coast about sixty miles to the
eastward of Avatcha Bay, eventually decided us on relinquishing
the idea of hunting them in this neighbourhood. We were pleased,
however, to be able to prove their existence in the interior, which
has by some previous writers been doubted.

We pursued our journey in a steady downpour of rain, our
track leading through coarse grass and other annual vegetation so
thick that from the back of a horse it was utterly impossible to see
any trace whatever of the way. Our two hunters had donned
their waterproofs,—long coats made from the intestine of the seal,
carefully sewn together with sinew. These garments are tolerably
strong in a thornless country, and though not ornamental, are as
light as a feather, and most effectual in keeping out rain. We
133 passed to the south of some hot springs, about two versts distant from
515 the village,[1] the water of which was said to be of such a temperature

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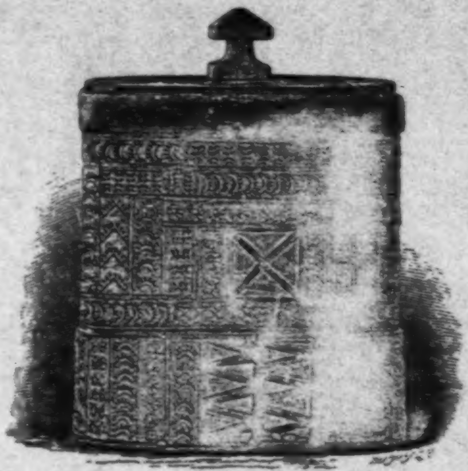
[1] *Ovis nivicola*, Eschscholtz.

[i.e. Narchiki--analyst]

133 515 that the hand could not be borne in it. Of these, as in Japan, there are many throughout the country, and they are greatly used for bathing purposes. At Malka, between Narchiki and Gunal, there is a spring of sulphurous water of great heat, in close proximity to another which is said even during the summer to stand steadily at the freezing point. We were, however, unable to visit it, and turned northward, passing across a *túndra* nine miles in length, and uninteresting enough in such weather. We had the pleasure, however, of seeing Vodki deposited in five feet of water in consequence of having fallen asleep upon his horse, but it must be confessed that our amusement was somewhat damped by discovering that our own personal baggage had suffered a like immersion.

We camped once more in a birch-wood, and but for the proximity of these trees we should have had no little difficulty in making a fire, as the forest was dripping wet.
322 824 531 The birch is to the inhabitant of northern regions very much what the bamboo is to the native of the south. It is his general-utility tree, and without it he would indeed be badly off. The stem is used in the construction of the sledges, and the inner bark is said to be cut green and used for food. From the knotty parts of the wood good spoons are made, while the multifarious uses to which the smooth and pliant bark is adapted in the construction of dishes, cups, and vessels of all kinds are so well known by every northern traveller as to need no description. The boxes are often much



BIRCH-BARK BOX.

322 531 ornamented with stamped designs, and are occasionally painted, or rather dyed, with blue and white; while the oval shape so commonly seen in Scandinavia is not infrequent. To the European traveller the tree is equally useful. Cups and other articles can be made with the greatest readiness; fires can be lighted in the wettest weather with the thin inflammable bark, and the inner layers of the latter form excellent writing-paper, the characters on which no quantity of rain will injure or render illegible.

133 136 The scenery some miles north of Narchiki begins to alter in character, an alteration that is distinctly for the better. The monotony of the birch-forests is relieved from time to time by openings where the dense undergrowth is supplanted by little rocky knolls covered with bright mosses. The ground becomes more broken and the open spaces larger, and before long the country approximates closely in character to that which, in Scandinavia, would be designated the lower fjella. We had hitherto shot but little game, but here ptarmigan were abundant,[1] and we were able with ease to secure as many as were necessary for the table. Farther on, we came to a small stream, which was, most probably, an affluent of the Great Bolcheresk River, which debouches into the Okhotsk Sea on the western coast of the peninsula. It was crowded with dead and dying fish; and the remnants of some recently devoured ones upon the bank, together with fresh spoor of bear around them, told us that, in all probability, Bruin was not far off.

I had never before seen the tracks of this animal in such abundance, but farther north it was common enough to see the river-banks as much trampled as if a herd of cattle had been driven down to water. The bears at this season of the year live entirely upon salmon. Later, when this diet fails them, they take to berries, upon which they live until the time of hybernation, which is generally

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[1] Probably a sub-species of, or perhaps identical with, the Dal-ryper or Willow Grouse of Scandinavia (*Lagopus albus*). I unfortunately omitted to preserve specimens of this bird until it was too late, and we did not shoot any after we had once begun the river journey.

136 when the first heavy snow falls, at or about the beginning of the month of October. If in poor condition the bear is said not to hybernate till much later. According to the natives, the animals are tolerably fat on emerging from their dens, and support themselves on grass until the arrival of the fish.

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137 Our road, some time after leaving Narchiki, had led to the west, in order to avoid a range of mountains of no great height which trends in a south-easterly direction from the village of Gunal. We now turned north once more, and entered a beautiful valley. To the east lay the range we had been circumventing, rising to a height of about 4000 feet, its large patches of snow glittering in the bright sun. The outline of these mountains was most picturesque; and, as we advanced, we opened out a group of *aiguilles* so jagged as to resemble a mass of inverted icicles. The valley was scantily clothed with juniper-bushes and dwarf birches, and early autumn had already touched the landscape here and there with patches of bright yellow. As we rode over the ruddy ground, which with its brilliant parti-coloured moss is so characteristic a feature
132 of northern landscapes, we put up several coveys of ptarmigan;
136 and on the outskirts of a small wood we obtained our first
231 Capercailzie, a young bird which, like many other birds of this region, was characterised by the presence of a good deal of white in the plumage. The day was glorious, and so hot that we rode in our shirt-sleeves; our enjoyment only marred by the almost constant stumbling of our horses over the stumps and roots of the trees. The Kamschatkan ponies, which are generally iron-grey in colour, and stand about thirteen hands, are well shaped and have a good barrel, and are capable of a considerable amount of work. Owing, however, to the rough usage to which they are subjected, they are determined kickers, and obstinate to a degree; and it is most difficult to make them lead the way, or, if behind, to prevent them from following in the exact track of those in front. No food is carried for them, and not content with the nightly meal they obtain when picketed, they one and all feed in snatches as they

231 go along, an annoying habit of which it was impossible to break them. Their ordinary load is from six to seven pood.[1]

133 It was not long before the presence of some large poplars ahead,
361 combined with certain whiffs of decaying fish, to which no description
491 can do justice, warned us that we were in the neighbourhood of a
river; and the howls of sledge-dogs presently greeted us as we arrived at the settlement of Gunal. We found some of the inhabitants engaged in making a bridge,—really a very creditable affair, as the river here is about twenty-five yards broad, with a channel some six feet or more in depth. Above the village this stream—the Bolchaia-reka, or Great Bolcheresk River—splits into two or three branches, which reunite a quarter of a mile lower, after having received two rapid, but shallow little affluents from the west.

144 Gunal is a most picturesquely-situated little hamlet of about
161 twenty huts, and has a population of ninety-four souls, who are
177 all, without exception, the descendants of Russians who established
361 themselves here with Kamschatdale wives in the last century.
The latter people are now rare as a pure race, excepting upon the
771 western side of the peninsula. The Gunalians are all Christians,
793 and have built themselves a church,—a small log-cabin surmounted
with a cross. Within the same enclosure, but separate, just as in Northern Sweden, is a little belfry with a single bell, time-worn and defaced. Owing to its inaccessibility, we were unable to read the inscription with which it was adorned. The church is parsonless. There are but three popes for the whole of the vast district lying between Petropaulovsky and the mouth of the Kamschatka River. Here the nearest is at Melcova, a hundred versts or more away; and once in every four months he comes in, marries and buries such of his parishioners as need it, holds service, and departs. He has not much to do, for the people are both apathetic and long-lived. In the little churchyard hard by there were scarcely twenty graves. They were marked by Russian crosses with a little

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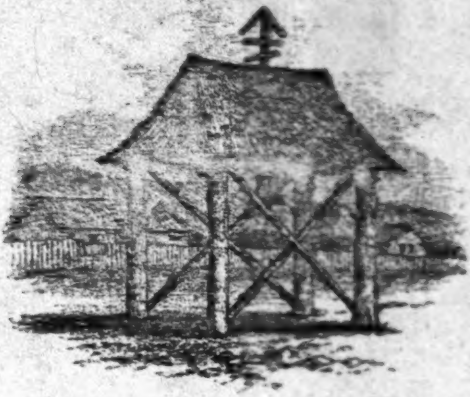
[1] A pood is equal to 36 lbs. English.

We passed two of the level seas of marshy ground that for lack of a better name I have hitherto called *túndras*. The term is, strictly speaking, applied only to the vast stretches of ground of this nature that are so wearisome to Siberian travellers. Here, however, the only difference lies in the size, and as we have no corresponding English word, I have preferred to retain the Russian name. The thick forests of birch were no longer to be seen, and the country, though still wooded, was more open, large clearings being not infrequent. The familiar monkshood, too, whose spikes of flower are in Kamschatka snowy white, as well as of the ordinary shade of violet that our English gardens exhibit, had almost entirely disappeared, and we saw but little more of it during the rest of our journey. The number of bilberries was enormous, but the cranberry was much less abundant, and its berries as yet were hardly ripe.



BELFRY AT GUNAL.

Riding quietly along in advance of our party, we suddenly came almost upon the top of two very fine bears, with a young cub between them. We were unfortunately without our rifles at the time, and before we could get them the animals had made off,

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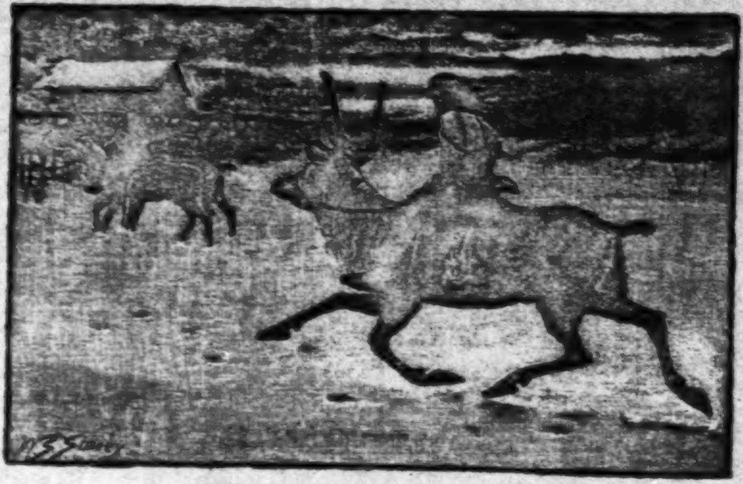
137 greatly to our disgust; and, though we spent some time in following them up, we did not succeed in getting sight of them again. They had doubtless got scent of us, and were far away. Bears are always much more disturbed by getting wind of human beings than by any noise the latter make, or even by their appearance; and the hunter, although his movements are by no means those of the stealthy-footed Malay, knows that unless he works to windward his trouble is in vain. The number of these creatures in Kamschatka must be enormous. Afanasi told us that there are hunters who have killed over four hundred in their lifetime, and we heard that at a little hamlet on the Bolcheresk River more than ninety had been shot and trapped during the summer. July, August, and September are the best months for them, as they haunt the river-banks at that season for the fish, and are in most excellent condition.

The heat at noon was nearly as great as it had been on the previous day, and the business of supplying our larder with ptarmigan for the many mouths we had to feed involved a very considerable amount of exertion; and, as we ploughed through the soft moss, sinking up to our knees at every step, "larding the lean earth as we walked along," it was difficult to realise that at night-
000 fall we should be back again in an Arctic climate. The birds were luckily tolerably abundant, and we had obtained a sufficient number on pitching camp for the night. Capercailzie apparently were rare. We had seen but few, and up to this period had only succeeded in obtaining one, and our game-birds were consequently limited to the Willow Grouse.

The Englishman travelling in Kamschatka who has reached his destination, not by the desert steppes of lonely Siberia, but by way of Ceylon and sweltering Singapore, where almost every bird he sees is unfamiliar to him, cannot fail to be struck, however unobservant he may be, with the resemblance of the avifauna of the new region in which he finds himself to that of his own country. He disturbs a Turnstone or a Golden Plover as he lands, perhaps,

000 He had been hard hit, and marks of blood were plentifully visible
as we took up the spoor. The vegetation was, however, so thick,
and everywhere so overrun with the trail of these animals, that
before long we had to give up the search, in spite of the aid of
133 Verglaski. We therefore returned, and striking camp, proceeded
136 up the valley of the Bolcheresk River, as on the previous day.
The river here runs due south through a flat plain covered with
yellow grass and about three or four miles in width. It is hemmed in by mountains which are at first of no great height, but as the head of the valley is approached the scenery becomes finer. We rode towards it under heavy rain, but before long the weather cleared, and disclosed to view a gloomy gorge on our right, about eight miles distant, from which the river evidently debouched. At the same time another valley became apparent, joining in from a north-north-westerly direction, and the stream which flowed through it appeared to have the same source as the Bolcheresk, or at least to rise at no great distance from it. We had got at last to the head waters of the Kamschatka River!



REINDEER RIDING, KAMSCHATKA RIVER.

133 Early in the afternoon we arrived upon its banks, and it was with no little interest that we inspected the river that was to bear us some four or five hundred miles upon its bosom before we reached the sea. It was a little stream barely fifteen yards across, and not more than a foot or eighteen inches in depth. The Bolchaia-reka, which we had just left, had been teeming with fish, but here not one was to be seen, and the disgusting smell of decaying salmon that is in Kamschatka the almost invariable sign of
000 the proximity of a river, was conspicuous by its absence. In a small grove of trees close by we found two rough log-cabins, which had doubtless been the winter quarters of some sable-hunters. They were deeply sunk in the ground, and by their dilapidated condition, had evidently been built many years ago. We were not sorry to find them, as it was our intention to camp here and try for bear, and at the same time, if possible, to explore the source of the two rivers. To our great disgust, however, the presence of a kettle hanging on a stick, and the yet warm ashes of a camp-fire, spoke in unmistakeable terms of the ground having been so recently disturbed as to render our chance of sport in the immediate neighbourhood but a poor one. We accordingly pushed on, and after riding for a couple of hours, struck the river once more at a most picturesque bend in its course. The ground in the vicinity was covered with fresh bear-tracks, and thinking we could not do better, we once more prepared to camp. At this juncture Vodki appeared, and begged us to try farther on, where the ground was everything that was perfect, and the bears in incalculable multitudes. "Just one verst more, little father." For the first and only time we yielded to his advice, and resumed our march. Verst after verst was passed and still it was "one verst more." Two hours and more elapsed before we began to realise that we had been befooled. To be befooled by Vodki!—the thought was too galling. Not in the best of tempers, we altered our course for the river at once, debating what form of punishment we should adopt. Our trouble, however, was saved us. Vodki, in no better temper than we at his plans

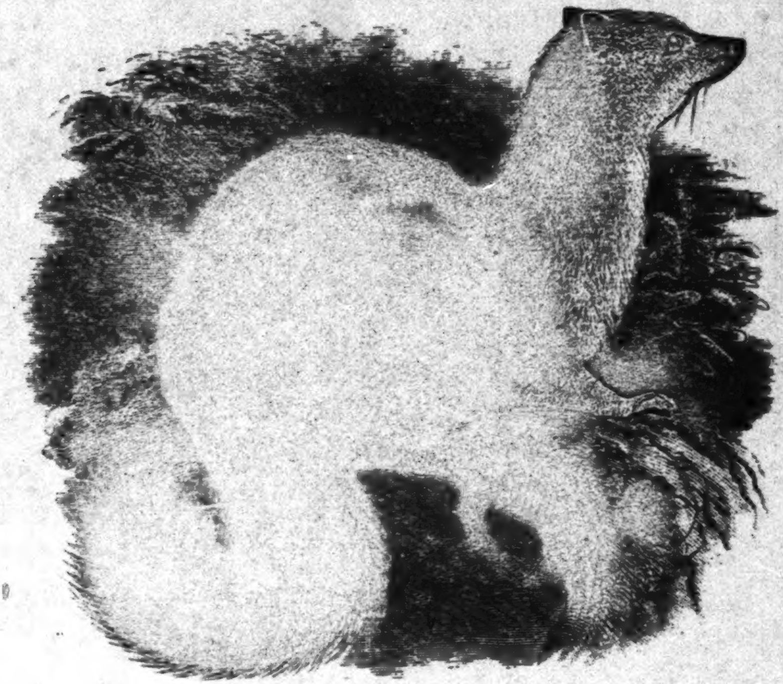
000 having failed, kicked one of the packhorses violently in the belly while unloading it. The effect was excellent. The poor animal, who, like the Pope's mule in Daudet's charming little story, had many an old score to pay off, turned round and bit his aggressor so successfully in the face as to leave him with a portion of his cheek hanging down. Here we interfered to prevent reprisals, and while the conqueror was led off to a patch of the most succulent-looking grass we could find, Vodki retired to his tent to nurse his wound for the next two days.

133/137 Accustomed as we had become during the earlier part of our journey to the wonderfully dense growth of the annual herbage, especially in the birch-forests and in the vicinity of the rivers, I do not think we had ever seen it in more rank luxuriance than we found it here. Our camp was pitched on a little eminence two or three hundred yards from the river, but the latter would have been almost unapproachable had it not been for the numerous bear-tracks that led in every direction through the forest of grass. As it was, the vegetation rose three or four feet above our heads, and was in places so thick that we could never be sure that our next footstep would not precipitate us into one of the hidden streams with which
000 the marshy ground abounded. In such ground shooting is almost impossible, and the only plan is to lie up in concealment on the banks of the river, on the chance of a bear coming out in the neighbourhood to fish.

We spent the remaining two or three hours of daylight in this monotonous and chilling amusement, and rose wet and stiff with cold without any success having attended us. The bears had in all probability deserted this part for some other place where fish were more numerous, and the only recent spoor we saw was that of an otter, an animal that is apparently far from common in the peninsula.

136 The following morning, since there appeared to be no fish in the river, we put our rods together and tried a fly in Kamschatkan waters for the first time. Paradoxical as it may seem, a river of

number killed by the party was close on one hundred and twenty skins. The Kronotsky Lake, which has never yet been visited by Europeans, lies south of the great group of volcanoes at the mouth of the Kamschatka River, and some sixty miles east of Melcova.[1] It is now completely deserted by the natives, but, as far as we could gather from our hunters, it has remains of ancient lake-dwellings on its shores, with deposits of shells and other objects of like nature resembling the *kjokken-möddings* of Northern Europe which, as far as I am aware, are unknown in the country at the present day.



SABLE.

Of the number of sables killed annually in Kamschatka it is

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[1] Both Melcova and the lake are wrongly placed on the Admiralty chart; the former is nearly ninety miles north of its assigned position!

114 136 226 825 given us by the natives of this fish. In the first place the Gultsi, as pointed out to us, was a long fish with somewhat rounded sides; the under surface of a most beautiful salmon-colour, the body marked with pink spots, and the back and upper surface dark greenish. The fish were in perfect condition, the coloration being evidently normal, and not due in any way to disease. To a piscatorial, though un-ichthyological eye they were Charr; a fish with which I was quite familiar in Lapland lakes and rivers,[1] but they differed in having the curious, upturned lower jaw to which I have already alluded.[2] The fish that Steller mentions, with their great breadth (depth) of ten inches, cannot well be of this species; and their migratory habits, and the fact that when they come from the sea they are "without the red tint and spots," is, I believe, opposed to what is as yet known of the life history of the Charrs. The natives distinctly told us that the Gultsi remains in the rivers throughout the year.

Two other species of salmon are mentioned by Steller as occurring in Kamschatka:—the Kundsha (*S. leucomænis*) and Mykysha (*S. purpuratus*), but we did not meet with either of them.

133 136 Late in the afternoon we arrived at some open grassy pools, the head of a small affluent of the Kamschatka River. Mallard and teal were abundant, and having refilled our larder, we turned our attention to the numerous salmon that were splashing about in the shallow water. Whether owing to the fact that the stream was slightly warm or not I cannot say, but the majority of the fish were in better condition here than we had hitherto generally found them, and were in consequence less easy to gaff. After a few minutes' waiting we were, however, able to obtain our supper in the shape of two or three fine Kisutchi of from ten to fifteen pounds weight.
000 Salmon is never eaten to such perfection as in camp-life, where the interval between its death and digestion is reduced to a minimum;

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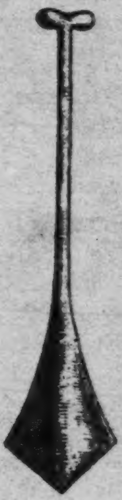
[1] In some of the lakes in Lapland the Charr grows to a very large size. I have seen one which scaled over fourteen pounds.

[2] *Vid. ant.* p. 99.

322 501 from the trunk of the *topoyina* or poplar-tree. They are generally about twenty-five or thirty feet long, by two feet in beam and depth, and are made to a great extent by burning out the interior of the tree-trunk selected, the finishing only being done by means of axes. We were able to procure five of these boats, and by their aid constructed two rafts in the following manner. We lashed three together side by side, with an interval of about one foot between each, taking care to place the weakest in the middle, and on this foundation placed a platform of poles and axe-hewn planks amidships, for a length of twelve or fourteen feet. Over this platform we constructed a rough shelter-hut, with a birch-bark roof sloping away behind, and the back and sides composed of waterproof sheets which could easily be furled or removed when necessary. The other raft, which carried Louis, Cook, and our two hunters, was made in the same way, but without the hut; and owing to its having but two canoes as a foundation, was laden fully up to where its Plimsoll-mark should have been. Our natives sat at the head and stern of each canoe, wielding paddles with a spade-like handle. They were also provided with poles, the use of which, wherever the river was sufficiently shallow, they seemed greatly to prefer. Shortly before noon our preparations were completed, our men waved their adieux to the remaining three-fourths of the inhabitants of Sherowmy, and pushing out into mid-stream, we began our descent of the river.



PADDLE.

133 136 Immediately below the settlement the branches of the Kamschatka reunite to form a stream nearly as wide as the Thames at Hampton Court, but scarcely more than a foot or two in depth. The current is rather swift, but without rapids, and the only dangers to be apprehended are the snags beneath the surface of the water. In the upper part of the river there are not many, but, lower down, the tremendous freshets which occur on the

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136 melting of the snows carry down trees of large size, piling them in enormous masses upon the banks, and depositing the water-logged trunks in the shallower parts of the river, a collision with which would probably result in the sinking of the canoe, from the liability of these craft to split. We progressed with tolerable rapidity, averaging about six versts an hour, rejoicing that stampedes were now things of the past, and that there was at least a possibility of some of our possessions reaching the journey's end unbroken. The river in its earlier course is very winding, and Werchni Kamschatka, the next settlement we expected to reach, although only twelve versts from Sherowmy by land, is more than six times that distance by river. As far as our own feelings were concerned, however, we would willingly have prolonged it yet more, for weather and scenery were alike lovely. The river ran between pebbly banks lined with birches, whose white-barked stems contrasted with the brilliant gold of their foliage. Reach after reach of still water opened out to us its quiet beauty, and here and there a little gap revealed a Hobbema-like scene of sunny distance, whose clearness was unbroken by the waver of a single leaf. Far away in front rose a range of deep blue hills, jagged and peaky, patched only with snow, for their southern slopes had been thawed by the heat of the summer sun. The calm surface of the water was covered by little packs of duck, which rose in long lines as our rafts approached, and the smoke of our guns formed miniature clouds in our wake which hung motionless above the stream until the rounding of a corner hid them from our view. We paddled on silently, our natives talking but little. Now and again the warning *na pravo, na levo* (to the right, to the left) told of the neighbourhood of a snag, or a shallow bank necessitated the use of the poles; but for the most part our progress was one of uninterrupted quiet, and the laziest of Nature's lovers could have asked for nothing better than to sit and be paddled thus for the rest of his natural life.

We saw no four-footed game, with the exception of a couple of

361 721 241 R 177 .72 peninsula. Now, however, Melcova must be regarded as the chief town of the interior, and its proximity—for it is only fifteen versts distant—must always effectually keep its rival in check. We were glad to get warm and partially dried at the house of the head-man before starting again for this latter place. Some few signs of cultivation were apparent: a few potatoes and turnips, and a small field of rye, the first cereal we had met with since our arrival in the country. It looked miserable enough under the pouring rain, and probably had little if any chance of ripening.

133 136 226 Three more hours of rain and paddling brought us to Melcova. It was almost too wet for shooting, but we noticed two or three small parties of the red-necked Phalerope (*L. hyperboreus*) on our passage. Those that we obtained were in autumn plumage, and were most probably on their way to warmer latitudes. But few duck were to be seen. They had in all probability betaken themselves to the marshes at the onset of the rain, and the river was devoid of life. Before reaching the village an elaborate arrangement of fishing-stakes gave warning of the presence of what in Kamschatka may be termed civilisation. The stakes stretched right across the stream from bank to bank, but we found a small gap at the side sufficient to admit of the passage of a single canoe, and capable of being still further enlarged by pressing down the stakes. The arrangement for taking the fish consisted in the construction of small *currals* at intervals of about fifteen yards. These were long bottle-shaped baskets on the lobster-pot principle, furnished with doors opening at the lower end, by means of which the fish could be secured by gaff or otherwise. We learnt that there were very strict rules with regard to the complete barring of the river at this spot. The inhabitants are obliged to leave a free passage for the fish at the time of their first arrival in the spring, and also on certain days in the week or month at a later period. But for this arrangement the people of Sherowmy and Werchni Kamschatka would of course be without means of subsistence during the winter months.

563 whole of the labour and material necessary for its construction was being gratuitously given by the inhabitants. I am obliged to record the fact that the building did not appear to be progressing with very great rapidity.

000 The weather of the previous day showed little signs of improvment. A biting wind with rain and sleet at intervals made us not sorry that we had settled to take a Sunday's rest here. Some fifteen miles or so to the eastward is a fine range of mountains about five thousand feet in height, which the downpour of the day before had covered to the lower slopes with fresh snow. Here and there a passing touch of sunlight fell upon the peaks and threw them out in bold relief against the leaden sky. But, late and cold as it was, the fishing had not ceased, and by the river-side they were cleaning and preparing Kisutchi—the latest salmon that visits Kamschatkan waters. Numbers of the King Salmon (*O. orientalis*) hung drying in the balagans; many of very large size.
132 The current of the river is rather swift here and at Werchni, and
133 we learnt that it does not usually freeze completely over until the
end of January. It would seem as if the severity of the frost were
never very great until that month. The snow invariably falls
throughout the country in October, or even earlier, but it is seldom
fit for sledge-travelling until November.

281 While at Melcova we tried to get some of the reindeer-skin
291 dresses of the country, as we had already felt the cold considerably
in European clothes, and knew that at this season the thermometer
would sink steadily from day to day. They had none for sale in
the settlement, and we had to send over to Werchni Kamschatka
for them. These dresses are of two kinds, the *kuklankas* and *parkas*,
and are merely loose sacques composed of pieces of reindeer-skin
beautifully dressed, and sewn together with thread made from the
sinew of the animal, just as are the "karosses" of South Africa.
They are provided with a large bearskin hood, and are put on over
the head without fastening of any kind. The rest of the costume
is composed of a pair of breeches of like nature, and boots almost

000 resumed our journey down the river. We had hitherto only been able to buy one canoe, and in consequence were in need of four others with which to make our rafts. These they refused to sell us, but offered to lend them, together with men to take us on to Mashura, the nearest settlement, for fifty roubles! The silver rouble being nearly three and sixpence, and the distance only sixty versts—rather less than forty miles—we at once refused, regarding the demand merely as one of the common incidents of bargaining, and expecting it very soon to be considerably reduced. We were rather astonished that there was no sign of anything of the kind, and after waiting some time we had ourselves to return to the charge. In vain we threw the Ispravnik at their heads: we had a discussion of an hour and a half's duration, which at last ended in our agreeing to pay forty roubles, but under protest. At the same time we informed them that we should lay the matter before the Ispravnik on our return to Petropaulovsky.

It was two or three hours after sunrise before we got fairly under way. The weather was gloomy and cold, but with the exception of one heavy shower, we escaped without much rain. 133/137 Shortly after leaving Melcova the character of the river scenery changes. For the first time on our journey we noticed the pine and spruce, and welcomed them with pleasure, as a relief from the wearisome monotony of poplar, birch, and alder. Here and there curious mud cliffs bank in the stream; often eighty feet or more in height, and nearly perpendicular.[1] The men begged that we would not fire while passing under them, lest a landslip should occur; and apparently with reason, for the soil appears to be constantly crumbling away, and little cascades of dust poured unbrokenly from the face of the banks as we paddled beneath. In one place we noticed a chalybeate spring welling up close to the water's edge, while others of pure water seemed abundant at the base of these earthy cliffs.

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[1] These banks of reddish marl, known by the name of *yar*, appear to be not uncommon in Siberia. The town of Krasnojarsk on the Yenisei is thus named from their existence in the vicinity.

133 Losing sight of the range near Melcova no more mountains are
361 seen, and Mashura, a village of fourteen houses and eighty-eight
484 inhabitants, has but little to recommend it in the way of scenery.
Excepting at the settlements no boat is ever met with, and voyaging
on the Kamschatka is regarded by the natives as an affair of some
000 moment. Our approach was accordingly heralded by numerous
discharges of blank cartridge from the guns of our raftmen, and as
we stepped ashore shortly after sunset we found the head-man
awaiting us, together with a considerable proportion of the inhabitants.
Anxious to prevent a "ring" between them and the men
we had brought from Melcova, we approached the subject of canoes
for our further journey as quickly as we could. But we had been
anticipated, and we began to see that henceforward extortion was
to be the order of the day in every case in which we were brought
in contact with these people. They refused to sell us canoes, and
demanded sixty roubles to take us on a distance of as many versts,
—a rate which would have left us with empty pockets before we
had got half way down the river. For a small birch-bark jar of
milk they asked half a rouble, and charged in like proportion for
other articles. In these cases, however, our line of action was
simple. We took the things at once, placed them inside the tents,
and paid what we considered the proper sum. They refused the
money, and when we turned in for the night without having come
to any definite settlement for the following day, the relations
between us had become considerably strained.

142 Mashura was, in bygone days, one of the largest Kamschatdale
144 settlements in the centre of the peninsula, but smallpox—the
164 disease so fatal on its first introduction among uncivilised nations—
177 broke out in 1767, and ravaged the country to such a frightful
extent that it is said to have killed nearly three-quarters of the
361 natives, and the village has since dwindled down to its present
insignificant size. The people were short, but strong-looking men,
with scanty beards and straight hair, which was either light or dark,
according to the preponderance of Russian or native blood. Most

22: Guillemard T-2 (1882) 1886 Kamchadal

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Most 1 of them were clothed in leather breeches and the boots I have already described, with the ordinary loose blue shirt of the Russian peasant, but some had already commenced to wear the *parka*. These are not all of reindeer, which is not a common animal except among the Koriaks, but are also made of bear and dog fur, although the dogs are not grown for the purpose, as is the case in Lapland.

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If leprosy be in any way connected with a diet in which fish is one of the chief constituents, as is by some supposed to be the case, in no country in the world should it be more prevalent than in Kamschatka. Dr. Dybowski had assured me that it was very common, and had shown me photographs in which the expression of the disorder appeared identical with that unfortunately so frequent in Norway. But the only case which came under our notice was at this place, and since the sufferers do not appear to be secluded in any way, it is only fair to conclude that, in the interior of the country at least, the disease cannot be very prevalent. Syphilis is, unhappily, very general, but its effects are now far less terrible than on its first introduction.

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We paddled merrily down stream in spite of the still unsettled arguments as to the price we were to pay our men. Below Mashura the pines become more numerous, and the perpendicular mud cliffs are a characteristic feature of the river. Beneath these we found the depth of the stream to be often as much as eighteen or twenty feet, but the mean depth is probably not more than half as great. Huge piles of driftwood block the banks of every low promontory, and testify to the enormous force and volume of the stream upon the breaking up of the ice,—a phenomenon which can dimly be realised from the wonderfully graphic description of Mr. Seebohm in his "Siberia in Asia." Owing to the increased depth of the water, snags became less frequent and navigation easier; but the size of our rafts prevented us from making more than five versts an hour, a rate that our log, frequently heaved and with corrections applied for the current, told us to be fairly constant.

Hitherto we had been able with the greatest ease to shoot as

000 regard to the price to be paid for the distance we had already gone, and when we eventually got off we discovered that we had lost five hours and a certain amount of temper to boot.

We floated silently down stream for a couple of hours or more, thinking over the discussions that, we knew only too well, would be renewed at the earliest opportunity, when, turning a sudden corner, we found ourselves face to face with a view that banished all thoughts of past and future annoyances in a moment. Before
133 us, eighty miles or more away, stood one of the grandest groups of volcanoes in the known world. Others there are, it is true, that are higher, although in most cases the elevation of the ground from which they take their rise detracts in no little degree from their apparent height. But here, from a base elevated scarce a hundred feet above the sea, a series of cones of the most exquisitely-symmetrical shape rose in heights varying from twelve to seventeen thousand feet. They were three in number. Nearest us was Tolbatchinska, dog-toothed in shape, with its apex on the western side, a long thin puff of white smoke drifting from its shoulder; and beyond, apparently in close proximity to one another, rose the twin peaks of Kojerevska and Kluchefskaya, perfect in their outline, —pyramids of the purest snow, before which one felt how poor was all language to express the sense of their perfect beauty. Snow mountains were no novelty to us. We had seen the Andes and the Alps, and had watched the sun rise on Cotopaxi, on Etna, on Fujiyama, and a dozen other mountains of equal note. But here all questions of comparison would have been a sacrilege, and floating noiseless over the unruffled surface of the river we sat
000 spellbound, drinking in the view. The sun sank slowly as we crept along, and slope and peak, at first a dazzling white, turned slowly to a glowing gold. On either hand the fast-approaching night had changed the glories of the autumn tints to a sombre shade of violet, and behind us the river was a mere streak of light. The bright glow of the fire upon the other raft lit up the bearded faces of our Russian guides around it, and when the daylight had

000 early dawn, with the thermometer below freezing, struggling in
an icy river with all one's furs on, but the unlucky bather was
soon ashore, and a sharp rub-down at the camp-fire soon restored
both his circulation and his equanimity. The day was once more
bright and clear, and the distant peaks looked magnificent in the
133 morning sun. As we drew nearer, the mountains opened out, and
the western slopes of Tolbatchinska no longer hiding Kojerevska,
the latter volcano appeared, from this point of view at least, as a
perfect cone of regular shape, which half concealed the equally
regular and still higher peak of Kluchefskaya, the king of the
volcanoes of Kamschatka. Other mountains too had come in view.
To the north and west of Kluchi,[1] but in close proximity to it, the
smoothly-rounded summit of Uskovska rose above the dark line of
forest, and far away to the eastward two isolated and nameless
cones of graceful shape appeared on the horizon, which, in spite of
their eight or nine thousand feet, are recorded in no map.[2]

133 At this part of the river the conspicuous marl cliffs disappear,
137 and the pines are replaced by aspens, a tree of which we had
361 hitherto seen but little. Landing in the afternoon to take photographs and observations, we came upon quantities of the *cherunka* or wild cherry. The fruit is black, and of the size of a large black currant; very sweet, but with a peculiar sloe-like astringent after-taste. The delicious Scandinavian *moltebœr* we did not meet with, but our common raspberry and red currant are in some places plentiful. The latter fruit is, in our English gardens, scarcely worth eating, but in the wild state it is very sweet and palatable.

Eleven hours' steady paddling brought us, at 6 P.M., to three deserted balagans, without fish, and with nothing to indicate the presence of a human being save four canoes hauled high and dry upon the bank. We learnt that Tolbatchik, a village that we

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[1] To the natives, with their love of contractions, the great mountain is thus invariably known.

[2] These we have since named Mount Gordon and Mount Herbert Stewart.

133 expected to find here, is not situated on the Kamschatka, but upon
361 a tributary stream which joins the main river some forty versts lower down. There is a short cut overland, however, and we settled to camp and despatch Jacof Ivanovitch to the village at daybreak on the following morning for a fresh relay of men.
000 Close to the camp we shot a large blue hare, the pats of which were very much developed, and clothed with the thickest fur. This, curiously enough, was the only one we met with during the whole journey. The sunset was strikingly beautiful. The eastern sky was a deep purple, and the snowy peaks so bright a rose-colour, that no painter would have dared to transfer them to canvas. But the appearance of the weather was unmistakeable, and we set to work at once to dig deep trenches round the tents in anticipation of the coming rain.

The morning broke as we had foreseen. The wind had shifted to the south, and the rain descended with a steadiness that boded a long continuance. The dull leaden sky reminded us of our native land, and the heavy mist seemed to render even the inside of the tents almost as wet and chilly as the sopping grass without. The natives had retired to their tent, and Verglaski alone, slow and imperturbable as ever, seemed unaffected by the weather. Jacof had started early for Tolbatchik, and there was nothing to be done until his return. We went in search of birds, either for preservation or the pot, but hardly a living creature was to be seen, and a hobby, an owl (*Surnia ulula*), and a small thrush (*T. fuscatus*, Gm.) were the only specimens we obtained. The afternoon, however, was relieved from dulness by our natives, though in a manner that was anything but agreeable, for we found ourselves involved in a renewal of the endless wranglings and discussions of which we had already had more than enough. The Mashura men applied for their money, stating that they wanted to return. Four of them had gone back at Tschappina, but the other four had come on with us, and to these we tendered a sum exactly proportionate to that they had already received for the first part of their journey. This, 000 rounded a corner, and the scene of our late squabbles was lost to sight. In justice to ourselves I should add that we deposited the money actually due to these men with the Ispravnik on our return to Petropaulovsky, but I believe that we should all have been glad to think that they never got it.

We had patched up our canoes as well as we were able before
starting, and were glad to find that they made but little water,
although the large, and as we had supposed, sound one, proved after
all to be quite as leaky as the others. The weather, which had
been gloomy and threatening, now showed some signs of improvement,
and our spirits rose with the more promising condition of
our surroundings. The size of our raft was against fast travelling,
but we paddled steadily on, and had made forty versts before
133 camping for the night. At 6 P.M. we passed the mouth of the
Tolbatchik River, coming in on the right bank; a tolerably deep
stream with a breadth of about thirty yards at its junction with
the Kamschatka. We held a consultation as to the possibility of
going on all night, but the cold was so great and the passage down
the river so risky from the snags, that we eventually decided
against it. An accident to our raft in its present state would have
been something more than a misfortune; it would have meant
little less than absolute disaster.

136 eastern form of the Pied Wagtail (Kittlitz's *Motacilla lugens*) was extremely numerous; the Yellow Wagtail much less so. But of all the land birds the Kamschatkan Marsh Tit (*P. kamschatkensis*) was at this part of the river by far the most abundant. For two or three days we saw them in flocks of from fifty to a couple of hundred individuals, streaming northward along the bank from tree to tree.

133 Shortly after mid-day we passed the mouth of a river joining the Kamschatka on the right bank. The natives knew it as the Kojerevaka. It is a stream of some size, being apparently of considerable depth, and having a breadth of forty yards at its junction with the main stream. As far as we could gather, it drains the opposing slopes of the Tolbatchinska and Kojerevaka volcanoes.

We reached the little hamlet of Kojerevsky at nightfall. The
distance from Tolbatchik, the scene of the last rows we had had
with the natives, is only ninety-one versts instead of two hundred,
and we might with perfect justice have reduced our payment to half
of the sum we had promised. But, to tell the truth, we had become
so wearied of the endless wranglings in which we had been
involved in all our dealings with these wretched people that we
paid them without a word. It was better to let them think that
they had deceived us than for them to imagine that we had
262 weakly yielded to what we knew to be an imposition. We were
144 pleased to find that the Kojerevakans exhibited strong evidences of
their Kamschatdale descent. We were received by the head-man,
a little brown fellow with bright eyes; and under his direction the
people did everything in their power to help us, carrying up our
baggage, bringing us wood, and altogether showing us an amount of
civility that was as new to us as it was agreeable. They provided
us with wild cherries, cranberries, potatoes, turnips, milk, cream,
and butter, and last, but by no means least, with a loaf of coarse
rye bread, which, we heard, had been specially prepared for the
Kluchi pope, who had been expected to pay the settlement a visit.

823 We felt that we had got among friends once more, and managed by
133 the aid of all these luxuries to pass a very pleasant evening, in
spite of the cold. At night the beacon flame of Kluchi, now
brilliantly illuminating the clouds of smoke that hung around the
crater, now sinking almost to extinction, shone out far above our
heads. There was an angry look about the volcano, and we were told
that its activity had of late been somewhat increased. The explana-
tion was simple. The Kanuli, or Spirits of the Mountains, whose
home is in the bowels of the volcanoes, had merely been more
fortunate than usual. It is hardly necessary, in these days of
omniscience, to explain that it is to these beings that all volcanic
disturbances are due. They go to the sea at night to catch whales,
which are their favourite food, and the roasting of several of these
animals within the crater is, as may be imagined, an operation which
requires the consumption of no inconsiderable amount of fuel.

000 The weather had become steadily colder from day to day, and
as we turned out on the morning of the 11th September we
regretted that the Spirits of the Mountains had not seen fit to do
their cooking in closer proximity to our camp. Our moustaches
were frozen to the blankets, and the water in the bucket inside our
tent was a sheet of ice. Morning observations and photography are
always interesting, but they are certainly best appreciated when
the thermometer is well above freezing. The view from our camp
was glorious, and the mountains, cloudless from base to summit,
towered above us with the startling clearness of outline so charac-
361 teristic of northern regions. Kojerevsky—a village of ten huts and
133 sixty-three inhabitants—lies at the foot of Uskovska, a mountain
of nearly 13,000 feet, whose summit from this aspect presents the
appearance of a uniformly rounded dome of snow. It is in reality
twenty-three miles off as the crow flies, but the giant scale on
which Nature works in these regions belittles space to an extent
that is inconceivable, until the hard facts of actual measurement
are before one. A little farther to the south and east is Kluchi,
whose sharp peak rises to a vertical height of 3½ miles above the

133 river, guarded on the right by Kojerevska, which is inferior to it in 361 altitude by fifteen hundred feet. To the extreme right lies Tolbatchinska, and above the intervening stretch of flat forest land the solitary peaks of the two isolated volcanoes I have before mentioned are visible some fifty miles away.

We had but little difficulty in getting the canoes requisite for constructing our raft upon somewhat less risky principles than the one that had, thanks to our good fortune, borne us the last seventy miles of our journey in safety. We reverted once more to our old plan of dividing forces, and late in the morning recommenced our voyage amid the firing of many salutes from the guns of the Kojerevskans, to whom we were really sorry to have to 000 bid adieu. At 4 P.M. we reached Uskovska, a hamlet containing

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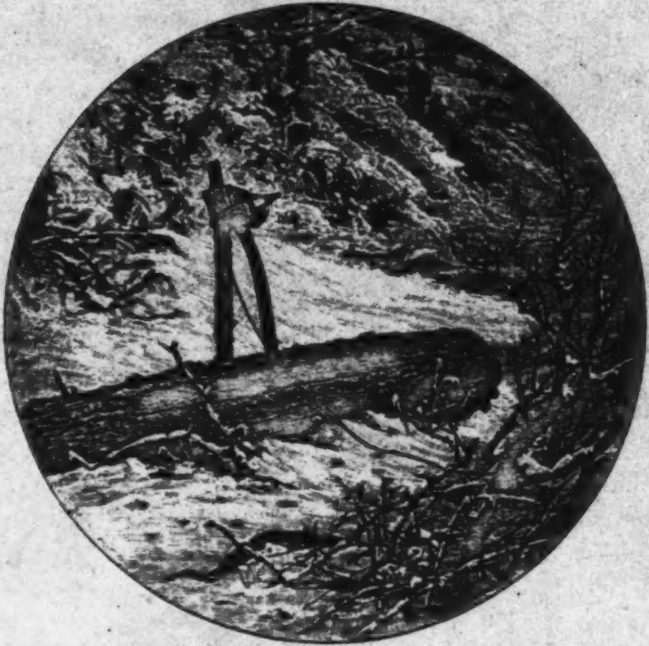

FOX TRAP.

000 that we could no longer continue our journey. Everything is comparative; and to our craft, with its low free-board and heavy load, the three-inch waves became more formidable than the heavy seas in a gale in "the Bay" appear to an ocean steamer. It would have been too absurd to founder in such a tea-cup storm, so we made for the shore, and set to work to cut down trees till we had to some extent restored the circulation in our limbs. An hour or two later the wind dropped, and we were able to proceed. We noticed the signs of some old forest fires near this spot, but they seem, happily, to be very rare. In Scandinavia, in a journey of the length that ours had been, we should have seen fifty or more. Here the great precautions that are taken against their occurrence are no doubt the chief reasons for their infrequency. Our hunters told us that the sables do not return to these spots for many years after, even if the forest has been but slightly injured by the fire.

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Late in the afternoon we passed the hamlet of Kristovsky, or Kristi as it was called by our men, and a few versts farther came upon some people encamped upon the banks. It is curious how little the rivers are used as highways either during the winter or summer. The natives can hardly be said to travel at all, excepting in their winter excursions after sable. This was only the second party we had seen away from the settlements, and we were told that no one had passed down the river from Melcova that year. We shouted greeting as we passed, but there was no time to stop, as we wished to reach Kluchi that night. Our Kojerevsky men worked their paddles with a will, and before long we reached the mouth of the Yelofka River, a large stream, eighty yards or more in width, which joins the Kamschatka on its left bank. It flows due south, draining the western slopes of the great Sevelitch volcano, and is used as a road to Tigil, a settlement on the river of that name in the north-west part of the peninsula, which is, or used to be, a trading station of some importance to which the Koriaks and Tchukchis bring in their furs for sale. The river is ascended 133
by canoes for fifty or sixty miles, the watershed is then crossed by

133 a march of two or three days' duration, and the traveller, striking the upper waters of the Tigil, reaches his destination by canoe.

At or about Kristovsky the Kamschatka, whose direction, roughly speaking, has been due north, bends suddenly to the east, and circles round the base of the stupendous volcanoes that guard its mouth. The aspect of the peaks alters considerably. Were not such a thing almost impossible, one would say that the scenery had increased in its sublime magnificence. Uskovska, Kojerevska, and Kluchi alone are visible, and of the two latter it is hard to say which is the finer. Kluchi is, and had been from every point from which we had hitherto beheld it, a cone of absolutely perfect shape, and Kojerevska is but little less regular in its outline. Now, as we advanced, the base of the latter was hidden in dense cloud, but its summit—a peak of extreme sharpness—stood out bare against the sky, the northern face a vertical wall of black rock on which no snow could rest. The river here is much increased in size, and is from three to four hundred yards broad. The depth is very uncertain, varying from a mere shallow intersected with deeper channels to twenty feet or more.

000 A few versts above the village of Kluchi four canoes pushed out from the banks and joined our party. Fully one-half of their occupants were women, who seemed to use the paddle with as great dexterity as the men. The boats were laden almost to the gunwale with the Kisuchi salmon, almost all of which were in good condition, though some had the peculiar rounded snout developed to a most extraordinary extent. One of the women—a most repulsive-looking creature—was dressed in man's clothes, but another had distinct pretensions to good looks, and ranging her canoe alongside, was soon deep in a flirtation with Afanasi, of whose reputation as a lady-killer we had all heard. The sun was setting as we rounded a corner, and came in sight of the village, its smoke hanging as a blue haze in the still evening air. To our left the Harchinska Mountains, furrowed with deep gorges, looked almost black against the amber sky. The huge cone of Kluchi caught the

000 last rays of the sun and flushed a pale pink, while at the lip of the crater a fleecy puff of smoke hovered for an instant as if in doubt, and then floated out a long thin streamer to the east. Around his shoulders hung a thick belt of cloud, gathering rapidly with the fast-approaching night, and beneath, slope after slope rose steadily up to meet the pyramid above. Kojerevska showed here and there a patch of glistening snow through rifts in the dense veil that hid him from our sight, and on the lake-like surface of the river below our little fleet of boats paddled merrily homewards to the rough and mournful cadences of a Kamschatkan love-song. Suddenly the flame of the first salute shot out from the other raft, the signal for a general fusillade. It was answered by a flash and a report from the village; and a little later we stepped ashore at Kluchi, and were welcomed heartily by the head-man and a little crowd of the inhabitants.

133/137 361 The morning of September 13th broke with hardly a cloud; and the view of the mountains, which now lay nearly due south of us, was so magnificent that I did not hesitate to devote one of my last plates to it. We crossed the river in a dug-out, and landed on a sand-bank near the opposite side. The stream is here six hundred yards in breadth, and forms a fitting foreground to the picture. Behind the village, whose weather-worn huts line the banks for nearly a quarter of a mile,—for Kluchi may be regarded almost as a city in this part of the world,—the even slopes of ruddy vegetation rise smoothly upwards, till, at the height of two
133 or three thousand feet, the snow is reached. The outline of the mighty volcano was as perfect here as before, and its exquisitely graceful slope as unbroken. Near the summit, on the side immediately facing us, a deep furrow, as yet untouched by the rays of the morning sun, showed the remains of some past eruption—a huge scar which the snows of many winters had done their best to obliterate. From the crater light puffs of smoke drifted slowly away to the east, far whiter than the snow which lay below, for on all sides, and especially near the summit, a sprinkling of ashes had

133 dulled its purity almost to a grey. The rounded half-dome of Uskovska to the west showed a vast field of unbroken snow, and on the side towards Kluchefskaya appeared to have been completely blown away by some great eruption in past years, leaving a huge open crater, the western walls of which alone were standing. The upper part of these, which was all that we were able to see, seemed to be almost vertical upon the inner face. Between the two mountains was a lesser cone, which, like Uskovska, appeared extinct. To us it was known as Little Kluchi, though whether we obtained this name from the natives or not I do not now remember.

The opportunity was an excellent one for taking further observations on the heights, the river forming a good base. We accordingly took advantage of it; and from the results of this and other work the following may be given as fairly accurate altitudes for the four chief volcanoes lying to the south of the lower part of the Kamschatka River:—

Kluchefskaya	16,988 feet.
Uskovska	12,508 „
Kojerevska	15,400 „
Tolbatchinska	11,700 „

Mount Gordon and Mount Herbert Stewart—the two volcanic cones lying to the south-east, to which I have alluded on a previous page—are probably both about 8000 feet in height.

It was late when we returned to breakfast, and found a visitor awaiting us. He was a poor old fellow nearly seventy years of age, who had spent three-and-thirty years of his life in this one spot, acting as a sort of doctor. What diplomas, if any, he possessed I do not know, but he seemed to have had sufficient ability at some remote epoch of his existence to have forgotten something. Half in dog-Latin, with a word or two of English, and half through Jacof and Afanasi, he gave us some few scraps of information. It seemed that three years previously—in 1879—

133 an eruption of Kluchi had occurred. There had been no previous warnings, although the mountain is always more or less in a state of activity, but on the morning of August 14th, dense clouds of smoke appeared above the crater, and at mid-day the sky was as dark as night. Before long ashes began falling, and in a few hours the ground was covered with them to the depth of three inches. There was no earthquake, but, on the following morning, a small stream of lava poured from the lip of the crater on the north side. It descended but a short distance, however, and, shortly after, the mountain returned to its usual state of threatening quiescence. With this exception there have been no eruptions within the memory of man, or at least none of any magnitude. A few ashes often fall, and had done so not long before our visit, but the recent falls of snow had done much to hide them.

Kluchi appears to have been still more active in the middle of the last century. Krasheninikov, in the work I have mentioned, says that "it throws out ashes twice or thrice yearly, and sometimes in such quantities, that for 300 versts around the earth is covered with them to the depth of a vershoke (nearly two inches). From the year 1727 to 1731 the inhabitants observed that it burnt almost without interruption, but they were not under such apprehensions as in the last conflagration in the year 1737. This terrible conflagration began the 25th of September, and lasted one week with such violence, that to the people who were fishing at sea near the mountain it appeared one red-hot rock, and the flames which burst through several openings sometimes showed like rivers of fire with a shocking noise." On the 6th of October there was an earthquake of tremendous violence in the Avatcha district and the southern point of Kamschatka; regions which, it should be observed, lie in a direct line between Kluchi and the volcanic chain of the Kuril Islands. An enormous tidal wave occurred, "overflowing the shore 200 feet high," and killing many of the inhabitants; but the country in the immediate neighbourhood of the volcano did not appear to suffer much, although a violent

133 earthquake was experienced at Nischni Kamschatka on the 23d of the same month.

In 1762 and 1767 outbursts again occurred, though of very much less severity, but subsequent to that time no accounts of other eruptions have, as far as I am aware, been published, with the exception of that of Professor Adolph Erman, who, in 1829, found the peak "in picturesque and sublime activity, and approached the burning lava, which poured forth a continuous stream," till he reached the height of 8000 feet above the sea.[1]

Upon the northern side of the Kamschatka River, 59 miles N.E. by N. of Kluchefskaya, rises the irregular mass of Sevelitch, of which we had hitherto seen but little. Its height is probably between ten and eleven thousand feet, but we were not able to take any measurements to correct this estimate. It is highest and most conical at its eastern side, and at the time of our visit was sending forth considerable volumes of smoke, which appeared to come from a crater low down on the south-west aspect, but owing to the extreme irregularity of the mountain, it was difficult to ascertain its exact position. Nothing indeed can be more striking than the difference between this volcano and Kluchi. The latter, with its wonderful steepness of slope and its unbrokenly conical shape, is probably one of the best instances that could be given of a mountain that owes its entire height and form to the slow piling up of the ashes and lava ejected from its crater. But in Sevelitch it is evident that the method of formation has been very dissimilar, and not of gradual occurrence, excepting as regards the secondary craters that have formed on the original mass. Hr. Erman, who passed several days on the mountain and the plains below, regarded it as having been forced from beneath the surface at a single eruption, since its bulk was composed of crystalline rock "resembling lava as little as the granitic rocks of the Alps." It would seem as if some giant power had upheaved the thin crust of the

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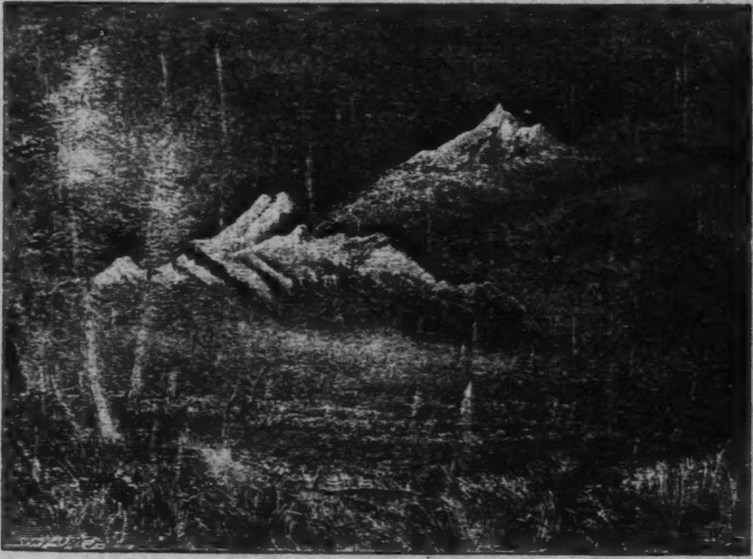
[1] "Journal Roy. Geogr. Soc.," vol. ix. p. 509. In the map accompanying this letter, Uskovska is placed some miles to the south of its real position.

133 earth's surface, and that through the openings thus formed the liquid rock had poured, retaining the uptilted fragments in their new position.



SEVELITCH VOLCANO, FROM THE SOUTH.

About nine months after our departure from Kamschatka a series of eruptions appear to have taken place, which in grandeur must have rivalled those described by Krasheninikov in 1737. Of these no particulars seem ever to have been published, for two years later the very fact of their occurrence was unknown both to the Royal and Royal Geographical Societies. But, from the fact of their having been synchronous with the terrible catastrophe at Krakatau, they present features of such interest that I here quote the cutting of the "Japan Gazette," to which I am indebted for the only information I can obtain upon the subject:—

"THE JAVA ERUPTIONS.—We are indebted to Mr. T. R. Green, who has just returned from a prolonged journey in Northern Asia, for some highly

133 interesting information respecting volcanic disturbances in that region. The particulars given, taken in connection with the recent volcanic eruptions in Java, seem to indicate that the active agency extended over an immense area. The disturbance of Mount Krakatau began early in August last, culminating on the 26th. At the beginning of July a cone, from 8000 to 10,000 feet high by estimation, not marked on the chart, but situate near the Kamschatka River, supposed to be inactive if not entirely extinct, suddenly split in two, emitting immense quantities of lava, which poured down its slopes. This phenomenon was not, however, accompanied by any very great local disturbance. Mount Siveluch (of Keith Johnston's map), the highest peak of the Kamschatkan range, 17,000 feet high, was in active eruption throughout the whole month of July, the pillar of flame in calm weather being distinctly visible at distances of from 200 to 250 miles; giving, after allowance for refraction, an altitude above the summit of the cone of 8000 to 10,000 feet. When the air was still, smoke, steam, etc., rose vertically to an elevation of 15,000 feet, where, meeting with a northerly air current, it abruptly took, at right angles, a southerly direction in a thin direct line. Captain Hubbard, of the M.B.S.S. *Toyoshimamaru*, recently described an eruption which took place at Shibotaru, one of the Kuriles, in the early part of June last. A copy of his letter addressed to Professor John Milne was, by the kindness of the latter, published in the 'Japan Gazette' of 30th June. Mr. Green further states that in April last the ice in the neighbourhood of the Kuriles was discoloured with volcanic ashes for miles in every direction, indicative of eruptions of unusual violence, probably in the north, but of which we have no note. Mr. Green was enabled to make some very interesting observations on cloud formations in the vicinity of the Kronotsky Peak. He describes this as, perhaps, the most perfect cone in the world, because it tapers to a fine point, and is of greater elevation than Fujiyama. At 2 A.M. to sunrise it would show perfectly clear and distinct from the sea like an unplumed cocked-hat. As the sun rose the snow would soften, evaporation no doubt begin, and mists would slowly gather around the summit, giving the mountain the appearance of a gigantic plumed field-marshal's cocked-hat. At daylight on the next morning there was not a vestige of the plume, but the process of its formation proceeded with unvarying regularity. This information will probably attract the attention of the Seismological Society. There certainly now seems an opportunity rarely offering for collecting and digesting the data respecting recent volcanic disturbances which should be availed of."[1]

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[1] The above paragraph needs explanation. What the "cone not marked on the charts, but situated near the Kamschatka River" may be it is impossible to say, but

133/137 did not serve in any way to render it less depressing. The village appeared nearly deserted, and as there was nothing to detain us we resumed our journey without loss of time. Before noon we arrived at the Tchoaki (lit. cheeks). These are narrows about seven miles in length where the river passes through a range of hills from two to three thousand feet in height. Both entrance and exit are very sharply defined, and the stream, which above and below is about eight or nine hundred yards broad, is here narrowed to between three and four hundred. The scenery is decidedly picturesque after the monotonous miles of willow-lined banks that weary the traveller's eye in the lower part of the Kamschatka; and we were reminded somewhat of the Iron Gates on the Danube, which geographically—I do not say geologically—the Tchoaki closely resemble. But the former are on a grander scale, and the river here, in spite of its contracted width, exhibits none of the tumultuous rush of water which makes the passage of the Iron Gates so difficult to a Danube steamer.

000 In the Tchoaki we met two or three canoes coming up from Nischni Kamschatka, and learnt from them that a schooner, painted white, and with a steam launch, was lying at Ust Kamschatka—the settlement at the mouth of the river. This was a piece of information which astonished us considerably. That there should be a ship of any kind there other than the *Marchesa* was most improbable, for, as they told us, she was the first vessel that had visited the river for three years. More improbable still was it that she should be a stranger when the fact of her being painted white was taken into consideration; while the existence of a steam launch seemed finally to put the matter beyond a doubt. But on the other hand, the fact that she was said to have arrived many days before was greatly against it, and as the bar was very shallow, it seemed hardly likely that the *Marchesa*, with her draught of fifteen feet, would be able to cross it. The natives could not give us any further information, as they had not seen the vessel, and we were left in a state of doubt which no amount of discussion helped to enlighten.

161 133 361 Emerging from the eastern entrance of the narrows we found ourselves passing through a flat, uninteresting plain which extended as far as the sea. Here the scenery is scarcely more interesting than that at the mouth of the Thames. A cold wind swept over the dreary reaches of the river, and behind us an ink-black sky gave warning of approaching bad weather. At 4. P.M. we passed Nischni or Lower Kamschatka, once the capital of the peninsula, a village of some importance with twenty houses and a church, and a population of 150. It lies a little way off the main river upon a smaller stream, and just opposite, upon the other bank of the Kamschatka, the Raduga, a river about forty yards wide at its mouth, flows in 000 from the south. A canoe shot out to intercept us as we passed, bringing a letter for Petropaulovsky from the Kluchi pope, who had left that village just before us on the preceding day, and shortly afterwards we saw another boat paddling hard after us. We stopped to let it approach, and soon recognised Jacof, whose gloomy face told us that Verglaski had not been found. He had apparently gone down the river for some distance, and had then turned back and proceeded towards Kluchi. Here the track had become obliterated, and Jacof had been obliged to give up the search. Poor old Verglaski; his quiet methodical ways had endeared him to all of us, and Jacof was much distressed at his loss. In the summer he would have had no difficulty in finding enough to subsist on, but at this season hardly any fish were left, and the settlements being so far apart, and upon the other side of the river, it was more than doubtful if he would ever have a chance of reaching one of them.

Paddles were once more resumed, and we were discussing the advisability of proceeding to the mouth of the river without stopping, when we perceived the smoke of a steam launch in the distance. By our glasses we soon made her out to be a stranger, and all doubts as to the arrival of the *Marchesa* were thus at an end. She proved to be the launch of the walrus-schooner *Nemo*, bound to Nischni Kamschatka. She had on board the first officer—

136 Since leaving Kluchi we had spent a good deal of time in trying to obtain a specimen of Pallas's Northern Sea Eagle (*Thalassaëtus pelagicus*)—a species which, at this part of the river, is by no means uncommon. It is a magnificent bird, and is especially conspicuous from the large white shoulder-patches and tail, but owing to its shyness it is extremely difficult to approach. We were, unfortunately, not provided with a rook rifle, and the few long shots we obtained were unsuccessful. Once only did we get a bird fairly within shot, and the two barrels of No. 2 that he received at a distance of thirty yards seemed to have no effect whatever upon him. This eagle appears to be chiefly confined to the lower part of the Kamschatka River, for we did not meet with it before reaching the neighbourhood of the great volcanoes.

226 252 262 The natives are prevented by law from barring the river in the lower part of its course, and here the salmon are taken chiefly with seine and drift nets. The V-shaped curral-trap of stakes, with baskets on the lobster-pot principle, is also frequently seen; a system which, as I have already stated, is used to bar the river right across at Melcova. The fat of the Kisuchi salmon is regarded as a great delicacy, and is prepared in considerable quantities at this season. A canoe is filled with water, and a number of the fish placed in it. Into this large red-hot stones are dropped, thus boiling the contents, which are meanwhile constantly stirred. The fat is then removed as it rises to the surface.

133 224 The low and muddy shores of the river in this part of its course are in many places intersected with small creeks, at the mouths of which two tall poles may often be noticed. These are used for taking ducks at flight time, by a plan which is not uncommon in other parts of the world. A fine net is hung between the two poles, which the hunter lets fall as the birds fly against it. By this means we were told that large numbers are often caught.

000 We woke on the morning of September 15th to a most miser-

133 WE WOKE ON THE MORNING OF SEPTEMBER 15TH TO A MOST MISERable day. We had not dug the trenches round our camp unnecessarily; the rain was coming down in torrents with a bitter wind, and we deferred our start till nearly noon. After four hours' paddling, the river, which here averages from twelve to fourteen hundred yards in breadth, widens still further opposite to the entrance of the arm leading to the Nerpitchi Lake, and sweeps round sharply to the south. Just beyond lies the village of Ust Kamschatka, in the dreariest situation it is possible to conceive; and here, cold and tired, we pulled up at 5 P.M. and established ourselves in a comfortable little hut belonging to Mr. Phillippeus, the fur-trader. Our journey was practically at an end, for we were but four miles distant from the bar at the mouth of the river.

A small look-out tower is built a little to the south of the village, and we at once ascended it to see if there were any signs of the *Marchesa.* Nothing was to be seen at first, but before long we made her out approaching from the south; and thus, after an absence of a month, we had hit off the time of meeting with an exactness as curious as it was fortunate. We were anxious to get off without delay, and the captain of the *Nemo,* with whom we had made acquaintance, offered to take us. We were soon afloat in his whaler, which was manned by a Japanese crew, and with the oars double-banked, we got over the water at a pace that was somewhat different to that to which we had been accustomed on the rafts. As we neared the river's mouth the thunder of the surf was not reassuring, and we landed to reconnoitre on the left bank, where the river, making a sharp turn before debouching into the sea, runs close to and parallel with the beach. Our men, who had preceded us with the baggage, had made a large fire of driftwood, of which we were glad enough to take advantage, for our teeth were chattering with the cold, and the rain had recommenced. But what we could see of the bar through the darkness was not such as to induce us willingly to attempt it, and we at once decided to return.

000 attempted it on the previous night would have been foolhardy in
133 the extreme. 1 At ordinary high tides it appears that there is between ten and eleven feet only in the deepest part, and R—— told us that he had had a narrow escape in getting the *Nemo*, which had a draught of ten feet six inches, into the river. She had bumped heavily once or twice. The entrance shifts constantly, and in bad or indifferent weather the bar is doubtless a very dangerous one. We arrived at the best time of the tide,[1] and were fortunate enough to get over the three big waves without even a wetting. A few minutes later we boarded the *Marchesa*, after an absence of exactly a month. We found all well, and the day passed quickly in chatting over our various adventures. The Swedes bade us adieu towards evening, and the sun was setting in a blaze of gold behind the giant pyramids of Kluchi and Kojerevska as we fired a farewell gun and stood away for Bering Island.[2]

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[1] It appears that there is only one tide here in the twenty-four hours.

[2] I have adopted this, the correct orthography of the celebrated navigator's name, instead of the more usual Behring, a piece of bad spelling which, I believe, we originally borrowed from the Germans.

[at the mouth of the Kamchatka River--analyst]

CHAPTER X.

KAMSCHATKA.

000 Cape Klin—Walrus—Permanence of snow at the sea-level—Betchevinskaya Bay—Hunting *Ovis nivicola*—Impassability of the bush—A magnificent bag—Description and measurements of the Kamschatkan Bighorn—Natural breakwaters—Seals and bears—Lost in the bush—Return to Petropaulovsky—Unveiling of the monument to the affair of 1854—Ship's pets—Leave Avatcha Bay for the south coast—An otter-hunters' village—Method of killing the sea-otter—The peoples of the peninsula—Lamuts in Kamschatka—We leave for Japan—South-easterly gale—Encounter a typhoon—Loss of Le Gonidec—Another gale—Repair damages in Yokohama.

133 THE eastern shores of the peninsula of Kamschatka are broken by three well-marked promontories:—Capes Kamschatka, Kronotsky, and Shipunsky; and it was for the latter—the southernmost—that we shaped our course. Our friend R——, the captain of the schooner *Nemo*, had recommended this part of the coast as being the best ground for wild sheep and walrus, and though he had himself hunted it on his voyage to the mouth of the Kamschatka River, we hoped that a sufficient time had elapsed for the animals to have returned to their old quarters. Nearing the land a little to the north of Cape Shipunsky, it soon became evident that the outline of the chart of this part of the coast had been traced according to the fancy of the cartographer. Instead of a nearly straight shore devoid of dangers, we found ourselves at the entrance of a fine bay nearly two miles in depth, running in a south-westerly direction. The scenery was wild and lonely-looking to a degree, but the jagged precipices and rocky islets of which it was in great part

133 composed were less pleasing to a sailor's than an artist's eye; and it was with a certain relief that, on the return of the lifeboat we had sent to coast the shores of the bay, we learnt that no trace of walrus was to be seen. With the prospect of bad holding-ground and no shelter to speak of, we resolved on trying farther to the north, and therefore, without anchoring, made at once for Cape Klin, our original destination.

We kept within a mile or two of the land, expecting to arrive in an hour or less, for the distance between Capes Shipunsky and Klin was barely twelve miles by the chart. We found, however, that the distances were as little to be relied on as the outline of the coast, and we had logged thirty-six miles before stopping the
000 engines abreast of the cape. We rowed along the beach in vain in search of the game. Not a walrus was to be seen, but on nearing a little group of rocks we noticed a large mass lying upon the beach, and landed to find ourselves in the midst of a scene of slaughter which sufficiently accounted for the absence of our quarry. The crew of the schooner had evidently had good sport, for the shore was dotted here and there with the bodies of the slain, which were blown out to a gigantic size by decomposition. That there were still plenty of walrus in the neighbourhood was evident, for on our return to the ship the animals played in numbers around the boat; but, unlike the fur seal, they will not "haul up" on the shores where others of their species have been killed, and we had therefore to give up all hope of obtaining them at Cape Klin. The walrus restricts itself more or less to certain favourite spots for landing, and a random search for them along the coast would have been attended with but little success. It is nearly impossible to kill them in the water except by harpooning, for the only fatal shot—a small spot at the nape of the neck—is very rarely obtainable, and the animal, if struck there, usually sinks at once.

132 Our search having thus proved fruitless, there was nothing left
133 for us but to return to the neighbourhood of Cape Shipunsky, in the hope of obtaining some of the bighorn or mountain-sheep

132/133 which, according to Jacof Ivanovitch, were to be found there in abundance. A few years previously he had visited Betchevinskaya Bay, a deep inlet ten miles to the west of the cape, and had shot several; and since, according to his account, both anchorage and shelter were to be had—a not unimportant consideration on such a coast—we again steered southward, and keeping a good offing during the night, ran in to the land and picked up our position off Cape Shipunsky at daybreak. The coast is steep-to, and as we passed close to the fine cliffs and headlands which oppose the by no means tranquil Pacific, there lay the *neiges d'antan* bewailed of Maistre François Villon,—huge patches of last year's snow, choking the gullies down to the water's edge. That they should have remained throughout the hot summer in a south-east aspect was astonishing, and gave some idea of the severity of the climate in these latitudes, but the absence of the usual autumnal rains no doubt in great measure accounted for it.

133 137 Before reaching our anchorage just within the entrance of the bay, we could distinctly make out small herds of the animals of which we were in search on the slopes of the cliffs, which here rose to a height of five or six hundred feet, precipitous in some places, but in others forming a sort of under-cliff covered with brushwood. We lost no time in settling our plan of action. Judging that the bighorn were confined to the promontory near which we had anchored, we resolved upon surrounding it, sending four guns to the top of the cliff, whose sea-face extended east and west for a distance of about three miles, and posting two others upon the beach below. The former, ascending in rear from the shores of the bay, reached their destinations with some difficulty, the undergrowth being so dense and strong that, but for the bear-paths with which it was cut up in all directions, it would have been impenetrable. At the edge of the cliff progression was somewhat easier, and on looking over we found ourselves in close proximity to the game.
000 Owing to the excitability of Jacof, who had got some distance ahead, we began the day in a manner I hardly like to recall. The

136 Bolcheresk Valley, and it probably exists at low altitudes on the great volcanoes near the mouth of the Kamschatka River. Every one of those we shot was a male,—their ages ranging, as far as we could judge, from three to six years. They kept in small herds of from three to nine individuals. As in the case of others of the same genus, the females and young males doubtless keep apart, but we were not fortunate enough to discover their habitat, neither could we obtain any information about them from the natives.[1]

Early next morning the most enthusiastic of our party proceeded in the lifeboat to the ground of the preceding day, hoping to add still further to the bag, while two of us started to explore the
133 magnificent harbour at the entrance of which we lay. Betche-
136 vinskaya Bay, the position and extent of which is but roughly indicated in the Russian charts, is a narrow inlet some five miles in depth, girt with precipitous cliffs of three or four hundred feet for the seaward third of its extent. At this point two low and narrow strips of beach run out from the base of the cliffs on either side, leaving a passage barely fifty yards in width in the very centre of the fjord, but deep enough to admit a vessel of the largest size. Within this the cliffs disappear, and an extensive and perfectly land-locked basin is entered, surrounded by high hills sloping gradually to the water's edge—as good a harbour as it is possible to imagine. Of the mode of formation of the two promontories I have just alluded to I can offer no explanation. They are so unnatural in appearance, and so closely resemble artificial breakwaters, as at once to attract the notice of the most careless observer. The long spit of beach running out at the entrance of Petropaulovsky harbour is of exactly similar formation, and the same phenomenon is said to occur at other places along the coast. Nature is not very lavish of her harbours on these shores, but the few that exist are excellent.

As we entered, the placid surface of the inner basin was dotted in every direction by the square black heads of seals, of which

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[1] Cf. article by the author *On Ovis nivicola*, "Proc. Zool. Soc.," 1885, p. 675.

133/136 there appeared to be enormous numbers. But as we intended to try for bear at the head of the bay we left them in peace. The wind, however, sprang up and blew directly inland, and all chance of sport being under these circumstances reduced to a minimum, we reluctantly returned. That bear were very abundant in the neighbourhood was evident from the numberless fresh tracks, and from the fact that we saw seven in two days, but owing to their shyness and the dense undergrowth they frequent, they are not easy to shoot. We had therefore to turn our attention to the seals, whose skins Jacof seemed anxious to obtain. They were the ordinary *Phoca vitulina* of our own coasts, or a very closely-allied species.

Landing on the natural breakwater on our way back, we were astonished to find a spring of fresh water close to its extremity. The pools formed by it were covered with teal and other duck, and with these and a stray golden plover or two we had good sport. The place seemed to be a favourite resort of bears, who had formed
000 numerous paths to the spring; but ill-fortune once more attended us, and we had to be content with a distant view of one of these animals, who made off at full speed. We returned to the *Marchesa* to find that considerable additions had been made to the bag by the other party. Four more *Ovis nivicola* and a walrus had been killed, the latter carrying very fine tusks, nearly two feet in length. Hunting these creatures is after all but a sorry business. In order to afford sport an animal should either fight or run away. The poor walrus does neither—at least to any purpose—and having once killed one, no sportsman would care to repeat the performance.

I have been led to describe the events of our two days' visit to Betchevinskaya Bay as an illustration of the abundant sport to be obtained in Kamschatka. Our total bag consisted of one walrus, fourteen bighorn (one, falling in an inaccessible place, was not brought in), and some seals, besides teal, duck, and golden plover. Had we been ordinarily fortunate we should also have obtained two bears, which, though badly hit, managed, owing to the

000 Long before the huge paw had descended in a futile effort at revenge the little rascal was safely under cover, on the look-out for another opportunity, and the bear might just as well have attempted to catch a mosquito. A more thorough little pickle never existed, but, like all pickles, he was very popular, and when one morning he disappeared never to return there was great lamentation among our men. We never learnt his fate. Probably Misky had caught his tormentor after many months of vain endeavour, and had dined off him.

We left Petropaulovsky on September 26th with the intention of visiting the coast towards Cape Lopatka. Even as far south as Avatcha Bay the nights had become bitterly cold, and warned us to take our departure if we meant to avoid the heavy gales that visit these latitudes at the onset of winter. We steamed out of the harbour over a sea so calm that the glare of golden light which lit up the western sky was reflected in its surface as in a mirror. Never had the bay and its grand volcanoes looked more beautiful, and we stood watching the blaze of colour fading over the yellow birch-clad hills and the lonely pyramids of snow beyond until the last ray of daylight had disappeared and the full moon had turned the landscape to a harmony in black and silver.

361 Next morning a thick fog hid the coast from view, but cleared
133 as the sun got up, and we were able to pick up our position. About
501 noon we found ourselves off an island abreast of the Itterna Volcano, and steaming into a bay close by, we scanned the coast for signs of a sea-otter-hunters' village, of whose existence we had heard through Afanasi. Not a trace of it was to be seen, and we were beginning to think that we had misinterpreted our directions when a couple of little canoes shot out from behind a point and paddled towards us at a great rate. As these neared the ship we saw that they were built somewhat on the model of a Greenlander's *kayack*, although not broader than the narrowest of Thames cedar-wood canoes. How they can live in any ordinary sea is little short of miraculous, but we afterwards learnt from the people that two

501 133 361 or three boats invariably proceed in company when engaged in hunting the sea-otter, and that during heavy weather they lash them together with the paddles, by which means even a moderate gale can be safely encountered.

The natives piloted us into a small bay which, protected as it was by an island[1] and a long reef running out from the mainland, afforded fairly good shelter in all winds. At the head of it stood the village, almost invisible at a little distance, composed entirely of underground yourts, whose smoke-begrimed interiors were not inviting to a European.
224 411 We had hoped to find many skins of the sea-otter here, but were disappointed, the whole village only producing two; we became possessors, however, of what, though less valuable, was of more interest,—the bow and arrows with which these animals are killed. The former is a tough piece of wood five or six feet in length, which is enormously strengthened by a band of plaited hide on the outer face, so tightly fixed as to give the bow when unstrung a curve in the opposite direction. The arrows are of wood for three-quarters of their length, fitted with feathers attached diagonally along the shaft, so as to produce a rotatory motion. The remaining portion is of walrus ivory, provided at the end with a socket, into which a barbed copper point is inserted. This is connected to the arrow by a long string of plaited sinew wound around the shaft. When the otter is hit, the barb, which is very loose, becomes at once detached, and if the animal gain the sea, its whereabouts is revealed by the arrow floating above it.

501 The canoes used by these people are of extremely graceful shape, and so light that they can be lifted in one hand with ease. They are constructed of a wooden skeleton

SEA-OTTER ARROW.

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[1] This island, which is not marked in the chart, was named by us after Lieut. R. ff. Powell. It is in Lat. 51° 33′ N., Long. 157° 50′ E., and is about two miles in length. The coast at this part is placed too far to the eastward.

22: GUILLEMARD T-2 (1882) 1886 KAMCHADAL

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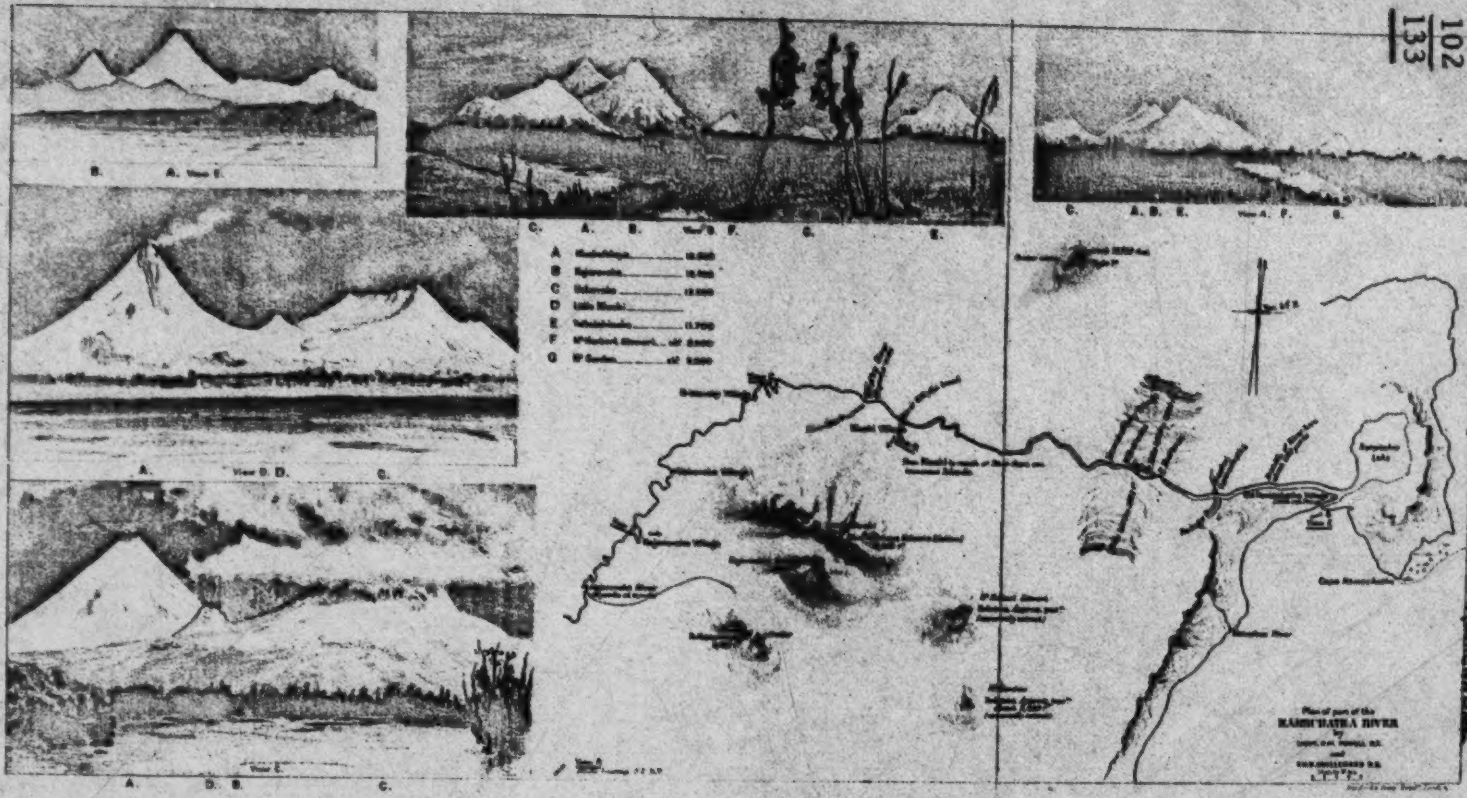
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Plan of part of the
KAMSCHATKA RIVER
by
[illegible]
and
[illegible]

24: Lansdell--634-635   M-2   (1879) 1882   ~~Kamchadal~~-I-3

116, 131, 133

"The traveller who, from Okhotsk, wishes to visit Kamchatka may reach Petropavlovsk by sea through the Kuriles, or continue round the coast by road. The latter course takes him through Yamsk to Ghijiga, at the north of the bay, a distance of 1,100 miles. He then descends along the western coast of Kamchatka to Tigil, 760 miles further, at which point he strikes inland to a valley lying below active volcanoes, and so reaches Petropavlovsk, on the shore of the North Pacific, a land journey from Okhotsk of 2,540 miles, accomplished by deer, horses, and dogs.

Kamchatka is so called after the name of its principal river. The peninsula is 800 miles long, and from 30 to 120 miles wide; its total area being about 80,000 square miles, or five times the size of Switzerland. The southern extremity, called Cape Lopatka, is a low, narrow tongue of land, which, as it proceeds northwards, widens and rises into rocky and barren hills, with small valleys timbered with willow and stunted birch. Two degrees north the range divides, one portion running nearly due north and the other taking a north-easterly direction. In the fork formed by these two chains lies the valley of the river Kamchatka. The western chain rarely rises above 3,000 feet, but the eastern chain has many high volcanoes, among them Kluchevsky, which is somewhat higher than Mont Blanc, and not far from the sea. (1) [635]

1. Many ranges of terraces and secondary summits surround the mountain

24: Lansdell--634-635 M-2 (1879) 1882 Kamchadal-2

116, 131, 133

as with an enormous pedestal, so that its base has a circumference of not less than 200 miles. The fissured summit constantly smokes, and twice or thrice a year throws out cinders. Ashes and dust have sometimes been carried to a distance of 180 miles, and covered the ground many inches deep, preventing the Kamchatdales from sledging. An eruption in 1737 ejected much lava, and this, dissolving the glaciers, poured into the neighbouring valleys a deluge of waters. In 1854 an other stream of fire descended from Mount Kluchevsky. From the crater of the Avasha, immediately behind Petropavlovsk, have been thrown at the same time stones, lava, and water. The following are some of the active volcanoes: Korakovsky, 11,200 feet; Chevelutch, 10,529; Jupanof, 8,478; Avatcha, 8,344; and the Great Tolbach, 7,618; Whilst, of the extinct volcanoes, Uchkin is the highest, with an elevation of 10,977 feet.

Earthquakes are more frequent, perhaps, in Kamchatka than in any other country. The number of shocks felt at Petropavlovsk averages eight annually. (1)

1. Mr. Hill describes one lasting no less than eight minutes. During the whole of this time rumbling and loud noises were heard beneath the ground,

24: Lansdell -634-635 M-2 (1879) 1882 Kamchadal-3

116, 131, 133

and the earth trmbled violently. Some of those who experienced it said they thought at one moment that the earth was sinking beneath them, and the sea about to rush in upon the land, and the next that they were rising upon the crust of the crater of a volcano in terrible eruption beneath the ground."

24: Lansdell--635-636 M-2 (1879) 1882 Kamchadal
116, 133, 757

"About 50 miles west of Petropavlovsk is a remarkable warm spring, into which when you enter, says Mr. Collins, the sensation is as if the skin would be [636] removed, whilst the stones and mud on the bottom fairly burn the feet, added to which the steam and gas, ascending from this natural caldron, fairly take away the breath. In a short time, however, bathers become red like lobsters, and find the temparature enjoyable. The water is very buoyant. It is used by the natives for all sorts of deseases."

24: Lansdell-638 [2] M-2 (1879) 1882 Kamchadal
116, 133, 161, 226, 361

" The number of the Kamchatdales, strictly so called, is estimated at 3,000. Their capital is Petropavlovsk, the only town on the eastern coast of the peninsula.(1)

1. It is situated on the right shore of the splendid Bay of Avatcha, which may claim with Rio Janeiro and San Francisco to be one of the finest harbours in the world. It is perfectly protected from the winds, and, transplanted to a more favourable position, it might be one of the greatest of markets; but since the fishery of the whale in the surrounding seas has lost its importance, Petropavlovsk has sunk from a place of 1,000 inhabitants to one of 500. Mr. Dobell, who lived in the peninsula five years, says that he found there many dykes and mounds, from the existence of which he argues that the country was once thickly populated."

27: Sauer--214 T-2 (1789-93) 1802 Kamchadal
116, 132, 133

"We passed the winter [CMC: 1790-1791] in excursions of pleasure, and in dancing and card parties, chiefly at Bolshoiretsk, where the luxuries of life are more plentiful than in the harbour of St. Peter and St. Paul. The frost was sometimes very severe, and we had for a few hours 21° below the freezing point of Reaumur. Two or three earthquakes happened about the neighbourhood of Neizshni; but, except a slight shock on the 21st November at noon, none of them reached the harbour of St. Peter and St. Paul.

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By the 1st of May the bay of Avatska was clear of ice, and not before, owing to the feverity of the winter: but the inner harbour of St. Peter and St. Paul remained frozen up."

27: Sauer--285-287 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 137, 787

"On the 11th August [CMC: 1792] in the harbour of St. Peter and St. Paul, I observed a number of swallows flying about, apparently much [286] frightened. They were red breasted, a species never remembered to have been seen here; and the inhabitants immediately predicted some remarkable event; they were, however, only seen during the morning. The next morning, about five o'clock, we were alarmed by a violent shock of an earthquake, preceded by a rumbling noise, little short of thunder. The motion of the earth was undulatory for nearly the space of a minute. I was dressing myself, and was thrown down, which induced me to get out of the house as quickly as possible. The water in the bay was agitated like a boiling cauldron. The shock came from the north-east, and appeared to me to continue upwards of two minutes; but other gentlemen were of opinion that it did not last more than one. A sailor, one of the watchmen on board the ship, was thrown out of his hammock. At Paratounca it was more violent; the earth opened in many places, and water and sand were thrown up to a considerable height; all the buildings in the village were more or less damaged; one balagan was thrown down; some of the ovens (the only brick-work about the buildings) were also shaken in; and all the paintings, &c. in the church, except Captain Clerke's escutcheon, were thrown from their fastenings.

At Neizishni Kamtshatka the inhabitants were extremely terrified; nor could they explain whether the noise or the shock preceded. The situation of the town is on a neck of land formed by the discharge of the Raduga, a considerable river, into the Kamtshatka;

27: Sauer--285-287 T-2 (1789-93) 1802 Kamchadal-2
116, 133, 137, 787

the bed of the former was dry, and the inhabitants ran across it toward the mountains. They, as well as the cattle, were thrown down; and the continuance of the trembling was, according to their account, near an hour; the earth opened in many places, and sunk considerably in some. The volcano Klut-[287]shefskoi emitted a vast column of black smoke; a noise like thunder seemed to issue from the bowels of the earth; the bells of the two churches rang violently; and the howling of the dogs, and screams of the people, surpassed all description, for the latter expected every moment to see the complete destruction of the town. But when the shock was over, the lost water of the river resumed its former channel, and the inhabitants returned to their dwellings. Not a single brick chimney or oven was left standing. The altar of one of the churches was separated from it about a foot, inclining a contrary way; and the greater part of the balagans were thrown down.

It is remarkable, that the inhabitants of the village at the foot of the burning mountain only heard the noise, and did not feel the shock; nor did it cross the mountains to the western shores of the peninsula."

27: Sauer--289-290 T-2 (1789-93) 1802 Kamchadal
116, 133, 137

"I shall commence my description at the southern extremity [CMC: of the Kamchatka Peninsula], which the Russians call the Lopatka, latitude 51°, longitude 156° 40', east from Greenwich; a low point of land, widening and rising gradually into mountains, barren and rocky, only producing here and there the creeping cedar and willow, to the extent of 40 miles. Birch trees then appear in the inconsiderable vallies, which are replete with lakes and runs of water rushing into the sea both east and west. A cluster of mountains occupy the whole space from the Lopatka to latitude 53° 5', where, in the neighbourhood of the village Malka, they divide into two branches, one trending north north-west; the other, which may be called the principal chain, leads north north-east. The place where the mountains separate is the highest land on the peninsula, and forms a barren stony desert of 65 miles in length, in a direction north and south, and from 3 to 15 in width, producing in detached spots brush-wood, willows, and a very few scattered and stunted birch-trees. It is replete with springs and [290] brooks; some of which uniting, and flowing south and south-west, form the Bistrea; while others, at only a few fathoms distance, take an opposite course, and are the sources of the river Kamtshatka. At the end of this desert, the mountains close within a mile or two, and a forest of birch-trees follows to the village Apoushinsk, where the river Kamtshatka is navigable for small boats to its discharge."

27: Sauer--290 T-2 (1789-93) 1802 Kamchadal
116, 133, 134, 135

"From this place [CMC: i.e., north of the village of Apoushinsk, from which point the Kamchatka River is navigable by small craft] the face of the country assumes the appearance of extreme fertility. The valley widens, and the space between the mountains east and west is at Virchni Kamtshatka 40 miles. The soil is deep and rich, composed of black earth, mixed with fine black ashes from the burning mountains, and fine iron sand, which adheres to a magnet, and forges well with bar-iron, but used alone is very brittle."

27: Sauer--290-291 T-2 (1789-93) 1802 Kamchadal
116, 132, 133, 137, 824

"The productions of nature [CMC: in central Kamchatka] are, a small kind of wild black cherry (tsheromka), in great abundance; the wood of which, being particularly hard, is used by the Kamtshadals for their guiding sticks to the sledges: the thickest trees that I have seen are nine or ten inches in circumference. Firs, common pine and larch trees of extraordinary size, with birch, poplar, asp, and mountain-ash, clothe the mountains to their summit. The underwoods are, currant, dog-rose, hawthorn, alder, and bushes producing berries.

The climate is very different from that of the southern and northern parts of the peninsula, the valley being completely sheltered from the sea-breezes that chill the air in other parts, and prove a great check to vegetation, which commences here in the month of March. The scenery is beautiful beyond description, [291] the river meandering through the midst of the valley, from 50 to 250 yards wide, and from eight to 15 feet deep, and being replete with trout and every species of salmon in the season. This valley is 180 miles in length, frequently opening prospects of the Tolbatshinsk, a lofty double-headed mountain, constantly emitting an immense column of black smoke; while the second volcano, Klutshefskoi, towering to an incredible height, illuminates the clouds with its blaze, and affords a view awfully grand."

27: Sauer--292 T-2 (1789-93) 1802 Kamchadal
116, 133, 137, 361, 563

"At Tolbalshinsk [CMC: mountain] the mountains are broken and barren; they encroach upon the valley, and considerably lessen its width. Storms are frequent between this volcano and that of Klutshefskoi, but never reach the neighbourhood of Milhovoi, and the trees are considerably less in size; but the country continues fertile as far as 30 versts north of the village Klutshefskoi, which is also a colony of Siberian peasants for the same purpose as those at Milkovoi, and who act in the same manner [CMC: see category 563, this source, p. 291]. Their proceedings are in some respects justifiable; for the magistracy at Neizshni exact the same payment from them as from the residentiary merchants. The court of justice conflicts of a burgo-master, four members, or rathmen, a secretary, writers, and watchmen; receiving a salary for the time they are in service: and frequently an expensive deputation is sent to Tigil, Bolshoiretsk, Virchni, and such places as are reported to by these pedlars; so that it is a matter of doubt with me, whether the culture of the earth would render any harvest sufficient to answer the payment of their claims. In some years they amount to 18 or 20 rubles, and in others half as much more."

27: Sauer--292 [2]　T-2　(1789-93) 1802　Kamchadal

116, 133, 134

"As you approach the north [CMC: of the Kamchatka Peninsula], the severity of the climate increases; the soil becomes sandy and stoney; and the vegetable productions are stunted and weak. The isthmus is situated in latitude 59° 20', and the distance from sea to sea is here about 40 miles. The widest part is from Kronotskoi Noss to the river Itsha, about 220 miles."

27: Sauer--293 [2] T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 137

"The western coast of Kamtshatka is uniformly low and sandy, to the distance of about 25 to 30 miles inland, where the mountains commence. It produces only willow, alder, and mountain-ash, with some scattered patches of stunted birch-trees. The runs of water into the sea from the mountains, do not deserve the name of rivers (except the Bolshoia Reka), though they are all well stocked with fish from the sea in season, as trout and different species of salmon. They are generally at the distance of 15 to 20 miles from each other. The Itsha and Tigil are the most considerable; and neither of these have a course, with all the windings, of more than 100 miles.

The sea is shallow to a considerable distance; and the commanders of the transport vessels, who never lose sight of the exposed coast if they can help it, judge of their distance from land, in foggy weather, by the soundings, allowing a fathom for a mile; nor is there at the entrance into any of the rivers more than six feet at low water, with a considerable surf breaking on the sandy beach."

27: Sauer--294-296 T-2 (1789-93) 1802 Kamchadal-1-3
116, 133

"The eastern coast is composed of mountains, rocks, rugged cliffs, and bold promontories, replete with inlets, and the appearance of such. Their entrance, however, is blocked up by reefs of rocks, the openings of which are only to be entered by the boats of the natives. Immense masses of stone are scattered out at sea to the distance of one two, and three miles; some of them being only discernible by the breakers, while others tower to a considerable height. The depth of the sea varies much, and suddenly, from 30 to 90 fathoms, and more. Earthquakes are frequent, and sometimes very violent.

The only harbour for ships on the whole peninsula is the Bay of Avatsha, which is probably the safest and most extensive in the world. I shall exert my utmost ability to describe this place; but fear that I shall scarcely be able to do it justice.

I will suppose myself approaching the coast from the south-east. When first seen, it appears strait and uniform, without bays or inlets; the land rising into moderate mountains, backed by such as are more lofty. Three of them, apparently united, [295] are very conspicuous to the north of the Bay, the farthest, or the most western is the highest and is conical; the next is a volcano, distinguishable by a column of smoke issuing from its summit, which is broken; the third presents several flat tops, lowering, and trending east, from which a narrow and lofty broken and irregular point of land extends about 15 leagues, terminating in a promontory called Sheeponskoi Noss. South of the bay are two remarkably lofty mountains; that nearest the entrance (Viluitsheskoi Sopka) is formed like a sugar loaf; the other, Apalskoi, is far inland, not so lofty, and is flat on the top.

27: Sauer--294-296 T-2 (1789-93) 1802 Kamchadal-2
116, 133

On getting well in with the land, it is high, craggy, and broken, presenting the appearance of inlets. When about the latitude of 52° 45', and longitude 159° 15', the entrance into the Bay of Avatsha discovers itself, bearing north-west by west; south of which, at the distance of about four miles, is a small round island, composed of high pointed rocks, called Staritshkovoi Ostrov. The north cape is a bluff head, with a light-house on the top of it, resembling a centinel's box. From this cape eastward, to the distance of three miles, breakers are discernible over hidden rocks, which extend to the south about half a mile. Within the channel, are three detached needle rocks near the north side: on the opposite shore a single one remarkably bulky, the top of which is nearly flat. Soundings lessen from 40 to 12 fathom, over a stoney bottom; and 10 fathom in the channel, sand and mud.

The entrance is in latitude 52° 51', longitude 158° 48', whence Sheeponskoi Noss bears east north-east, distant about 17 leagues. It forms a channel in a direction north north-west four miles deep; the breadth is three miles in the widest, and two in the narrowest part; both shores rocky; the summits covered with birch trees, mountain-ash, and hawthorn. Having passed this [296] channel, you enter a most magnificent basin about 25 miles in circumference, completely land-locked, and every where (except the north-west extremity) high, and covered with trees. As we advance in the basin, commodious harbours open: to the east, Rakivinoi, about three miles deep, and three quarters of a

27: Sauer--294-296 T-2 (1789-93) 1802 Kamchadal-3
116, 133

mile wide. The south cape is a lofty perpendicular mass of stone. Shoal water over rocks extend from the shore into the bay, about 50 fathoms from south to north, which makes the entrance difficult. The north cape is a high rocky shore, with some rocks that are detached; but these are visible, and not of any extent; the depth within is from 13 to 3 fathoms."

27: Sauer--296-297 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 137, 361, 563 Russia
636.71

"The little harbour of St. Peter and St. Paul is to the north [CMC: in Avacha Bay]: its south bluff cape is extremely conspicuous; and the buildings upon the spit of land before it are clearly discernible. This harbour is in every respect convenient for giving ships all kinds of repair, as also for obtaining fire-wood and fresh water. If all its good qualities are considered, I think it may be pronounced the most convenient in the world. Six or eight ships of war might be conveniently moored in it head and stern: the only inconvenience (if it may be so called) lies in the amazing toughness of the ground; for if the anchor be heavy, and out any time, it will probably be found necessary to heave a strain on the ship to weigh it. The south of the harbour is bounded by a narrow neck of low land running out from the eastern shore in a western direction, covered with wooden houses and balagans; at the extremity of which is the entrance, 38 fathoms wide, and six and a half deep: ships may pass so close to this point of land, that a man may leap on shore. The west side is a projecting narrow mountain of moderate height trending to the south, terminating in a bluff head, upon which it a battery of three guns, and a flag. [297] From this extremity a shoal extends south about 100 fathoms. The north, which is the head of the harbour, is bounded by a valley, in which are the government magazines, barracks, and the dwelling houses of the commander and chief inhabitants. To the east, it is bounded by lofty mountains covered with wood to the very summit; namely birch, mountain-ash, hawthorn, dwarf-cedar, rose-bushes, &c. On this side

27: Sauer--296-297 T-2 (1789-93) 1802 Kamchadal-2

116, 133, 137, 361, 563 Russia

636.71

are several springs of very pellucid water rushing down the mountains into the harbour, and these are very convenient watering places.

The bay is bounded to the north-west by the extensive plains of Avatsha, where two rivers discharge themselves into it; namely, the Avatsha and Paratounca. At the estuary of the former, the Kamtshadals, who formerly resided in the harbour, have their present habitations; while the troops of the garrison possess their late dwellings."

27: Sauer--297 T-2 (1789-93) 1802 Kamchadal

116, 132, 133

"The harbour of Tareinsk opens to the west: the entrance is about one mile in length, when it suddenly turns to the south-east, extending twelve miles in length, and three in width: the depth is from six to eight fathoms, mud and sand. A narrow neck of high land at the bottom, like an artificial partition, separates it from the sea. This harbour, although extremely convenient in its construction, is not so in its situation; as an easterly wind is absolutely necessary to bring outward bound vessels into the bay of Avatsha where it is quite contrary; besides, it is exposed to the north and north-west winds, which blow over the plains of Avatsha right into it, and keep it blocked up by ice till late in the season."

27: Sauer--298 T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 137, 161

"Near the mouth of this harbour [CMC: of Tareinsk in Avacha Bay], on its north-west borders, is a valley forming a plain of about one mile and a half square, well wooded with good sized birch trees: a situation which Major Behm thought the most eligible of any hereabouts for a town. North and south are lofty mountains of easy ascent, covered with trees to their summit. The valley is bounded to the west by a fresh water lake of about 15 miles in circumference, well stocked with fish all the year through; while its borders abound in different kinds of berries, sarana, tsheromtsha (a kind of wild garlick), and a variety of pot herbs. This lake is the chief source of the river generally known by the name of the Paratounca, of which I shall shortly give an account, as also of the other rivers. The remains of numerous villages in the vicinity of this lake strongly indicate the former popolousness of these parts; but they are at present overrun with bears, wolves, and hares."

27: Sauer--300-301 T-2 [(1789-93)] 1802 Kamchadal
116, 133, 136, 137

"The plains of Avatsha, which bound the bay to the north-west, extend 18 miles from east to west, and 35 miles from north to south, producing at their northern extremity only a few patches of birch, poplar, and alders; all the rest are marshy grounds, overgrown with rushes and coarse high grass, with some spots of oziers and alders; the resort of myriads of water fowl, swans, geese, an amazing variety of the duck kind, and I believe every species of snipe. The river Avatsha runs in several branches through this plain. Towards its northern extremity are an immense number of cold springs, that form several basins of water, with small runs, uniting in a rivulet, which has a course towards the south of two miles, and empties inself into the river generally known by the name of the Paratounca, but which is called by the natives Ilmitsh; and the original Paratounca is the run from the springs above mentioned, opposite to the discharge of which the village of that name is situated. These springs do not [301] freeze in winter, during which season they are frequented by swans, geese, and several species of duck, particularly the safka, or duck with a melodious note, which has induced me to stile it musical. Here they find an abundance of food, and the pulpy root of an aquatic plant which, in its appearance, exactly resembles the olive, but is like the chesnut in flavour: I used it as a vegetable, and thought it better than any production of the gardens; the natives call it the sarana of the geese."

27: Sauer--301-302 T-2 (1789-93) 1802 Kamchadal
116, 133, 484

"With regard to rivers, the Kamtshatka is the only one of any consequence. Its source I have already described: it flows nearly north to Neizshni Kamtshatka, where it turns to the east south-east about 25 miles, and empties itself into a large but shallow bay formed by the Kronotskoi and Kamtshatskoi promontories; its discharge is extremely shallow, not exceeding eight feet at high water, and the breakers are very violent with an easterly breeze. This, however, is the only navigable river on the peninsula.

The Bolshoia Reka has only a course of 20 miles. It is formed by the union of the Bystrea with the Natsheke, a little below Bolshoiretsk: the former has its rise from the springs near the source of the Kamtshatka, and takes a sweep from south to west; the latter commences a little south of the village Natsheke, and flows nearly west about 100 versts: neither are navigable, though, during the springflood, the natives sometimes venture down them in their canoes, but with great difficulty, owing to rapids, &c.

The Avatsha has also an interrupted and unnavigable course of 70 versts in a direction east south-east. The inhabitants of the [302] village Koriatsk, 20 miles up this river from its discharge, pass up and down it in their canoes, hauling them over the flats."

27: Sauer--302 T-2 (1789-93) 1802 Kamchadal
116, 133, 224, 484

"The Ilmitsh, commonly called the Paratounca, has its rise from near the Viluitshiskoi Sopka (called in Cook's last voyage the Paratounca); and from a lake near the Tareinskoi harbour, it makes a circuit of 85 versts, and discharges itself into the bay of Avatsha, only three miles in a direct line from its source: it is navigable for boats all the way; but I was fourteen hours in traversing the whole of this river, from the lake, in a canoe. The villagers of Paratounca go on the chase of deer, argali, bears, &c. about the source of this river, by passing down the stream into Tareinski harbour, and hauling their canoes over the plain already mentioned into the lake. An immense number of rivulets from the mountains flow to the east into the ocean, but none of them are either remarkable, or have their banks inhabited."

27: Sauer--302 [2] T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 777, 825

"Here are no lakes of any extent: the names of the principal ones are, Osernoi, about 40 miles from Cape Lopatka; Kronotskoi, 20 miles south-east of Tolbatshinski volcano; and another of less extent, situated about 40 miles north of Neizshni Kamtshatka, called Nerpitshi: the natives say that they are replete with fish; and tradition relates, that the fish of these lakes had two heads, or that they possessed legs; and, being sacred to some deity or demon, those who presumed to ensnare them were punished with misfortunes: some of the natives, however, seem to doubt the truth of this, while others still firmly believe it."

27: Sauer--303-304 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 134, 137, 782, 821

"Hot springs are very numerous, and seem scattered all over Kamtshatka; but those in the following places are the most remarkable:

Opalski, or Osernoi, situated nearly midway between the Lopatka and Bolshoiretsk, about 15 miles south of the Kamtshadal village of Yavinsk, surrounded by mountains, and at no great distance from the volcano of Opalsk. They occupy a valley of considerable extent, and are scattered to the distance of six miles, some parts of which produce detached birch trees, the sweet plant, &c.; but in general the soil is barren, composed of different coloured marl, and large stones which appear to have been scattered by eruptions of some volcano. The largest hot spring is at the foot of one of the mountains; and we heard the noise that it made at the distance of near a mile before we came to it. It is about six fathom in circumference, boiling up to a considerable height; the middle appears like a cauldron; and a piece of beef placed in it was very well boiled in a short time: all around it bubbles up between large stones; it then divides into two streams, which descend over stones, and unite at the bottom with a small rivulet formed by the other springs to the north: they flow a little way to the south, then turn westward into the lake Osernoi. About the border of these springs, and the rivulet which they form, we observed petrified, or rather calcarised, foliage of the sweet plant, birch leaves, sticks, &c. of a beautiful whiteness; but so extremely delicate in their texture, that we could not preserve any, even in cotton; for they mouldered to dust. The Kamtshadals suppose this to be the habitation of some demon, and make a

27: Sauer--303-304 T-2 (1789-93) 1802 Kamchadal-2
116, 133, 134, 137, 782, 821

trifling offering to appease his wrath; without which, they say, he sends very dangerous storms. Our naturalist and Mr. Varonin, who ascended to these springs in 1790, experienced [304] a whirlwind, which tore their tent, and scattered its contents about, many of which were never found again. Ashes were scattered upon the snow about four inches deep, resembling coarse gunpowder, probably from the volcano Alaid (a solitary mountain in the sea, situated about 20 miles south-west of the Lopatka), which burns violently at this time(February 1793). It has at various intervals emitted smoke ever since 1790. The oldest inhabitant does not remember its having done so before, although tradition informs them of its violent eruptions."

27: Sauer--304 T-2 (1789-93) 1802 Kamchadal
116, 133, 134

"Toward the source of the Bystria, near the village Malka, are hot springs, a little way up the ascent of one of the mountains, which boil out of the earth in two or three places about a foot wide. Similar springs are seen near the village Natsheke, but more extensive, and forming in their run several convenient bathing-places. These have a sulphureous smell; and the stones taken from the bottom of the openings, where the springs appear, are covered with a shining thin coat, which resembles silver at first, but gets dull and of a dark colour after it has been sometime exposed to the air; the surrounding earth, to the distance of 20 fathoms in every direction, is warm, replete with empty shells like those of snails, and a transparent glutinous substance; as also with spots of loam, whereon any thing heavy being thrown sinks immediately. South of these springs, about the distance of 30 versts, at the source of the river Natsheke, is a sandy level spot, with several hot springs, the water of which is said to be brackish."

27: Sauer--304-305 T-2 (1789-93) 1802 Kamchadal
116, 133, 757

"At the distance of 12 versts from the village of Paratounca, in a direction north-west, is the discharge of a deep rivulet of warm water, called Klutshevoia, navigable for canoes three versts up-[305]wards. It springs from several hot water lakes in an extensive plain; one of which lakes is about 100 fathoms long, and 7 fathoms wide; very convenient for bathing near the shore, but the middle very deep, and extremely hot. About 20 fathoms from this is another, about 5 fathoms by 7, but excessively hot: a body of boiling water issues through a square hole in a stone at the eastern extremity; and it has a run into a cold water spring, so narrow, that you may stand with one foot in each. Ulcers, old and fresh wounds, are reputed to heal from bathing in this water. I used it for tea, but the flavour was not very agreeable, being something like that of alum. The hot springs of Shumatshik are situated 90 versts north of the bay of Avatsha, and flow into Kronotskoi Bay. There are several others, but of no note."

27: Sauer--305-306 T-2 (1789-93) 1802 Kamchadal-2
116, 133

this time earthquakes were felt two or three times in the course of every 24 hours.--Shevelutsh is 80 versts north of Klutshefskoi: this burnt formerly; but now it seldom happens that smoke issues from it: this volcano is the source of two rivulets, the Iltshutsh and Bakus, both of which flow into the Kamtshatka."

27: Sauer--305-306 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133

"The following are the principal volcanoes:

Opalsk: I have described this mountain as seen from the sea. Its situation is near the hot springs; but its emission of columns of smoke is of very recent date, and they are not constant; nor has it ever been observed to blaze. --Viluitsh, or Viluitshiskoi Sopka: this seems now completely extinguished:--Avatsha, 25 miles north of the bay, constantly sends forth a body of smoke from its summit; as does also Tylbatsh, and Klutshefskoi, or Kamtshatskoi Sopka, both situated near the river. Tylbatsh (frequently written Tolbalshinsk) is one of the mountains that constitute the eastern chain; but projects considerably towards the river. It is more lofty than the rest, and has a pointed top. A little way down it, a sharp ridge stretches away to the north; from this ridge, and the side of the mountain where it joins, the smoke issues. I have observed, in a clear night, a reflection over it, resembling the Aurora Borealis. Klutshefskoi volcano may be reckoned among [306] the highest peaks, I believe, in the world. It is situated 175 miles west of Bering's island, from which, however, it is distinctly seen in clear weather at the time of the sun's setting: at least, I am assured of this by several Kamtshadals who have been on the island. This volcano is frequently subject to eruptions: in 1789, on the 20th November, a great noise preceded an earthquake; flames burst forth, with discharges of small stones and ashes: the trembling of the earth and the noise continued, more or less, till the 23rd, when it abated considerably; but on the 15th February 1790, it again resumed its former violence until the 21st: all

28: Sarytschew--60-61 T-1 (1789-90) 1806 Kamchadal-1-2
116, 133

"The entrance of the bay [CMC: Avacha Bay] by the light-house, has 13 fathoms water, and a sandy bottom. The banks on both sides are peaked and stony, having occasionally windings, in and out. Not far beyond the light-house, stand three lofty isolated rocks in the form of pillars, close by each other; on which account they are denominated the Three Ribbons. Very near these pillars is a little creek called the Saline, from the salt-works which exist on its banks. On one side of the creek, lies a little stony island, called the Traitor's Island, from its having been the place of concealment for the ring-leaders of the Kamtschadale insurrection against the Russians. On the other side is a lofty rock, called the Grandmother's Rock.

The entrance into the bay extends two leagues beyond these, and terminates with the commencement of the bay itself, which is 26 leagues in extent, and loses itself in three creeks, running parallel with each other: one of which is called Tarjinskoi, the second Rakowoi, and the third forms the harbour of Petropaulowsk, which was the object of our destination. It lies more to the north of the entrance, in the middle of which is a sand-bank, where the depth of the water is scarcely 1 1/2 fathom. The creek itself is from six to fifteen fathoms deep, and affords a good anchorage every where in its muddy bottom. The shore and surrounding country are mountainous, except towards the north-west, where there are some plains and low-lands. From this side also, flow the rivers Awatska and Paratunka, into the creek.

Towards evening we came to anchor near the harbour of Petropaulowsk, which is above

28: Sarytschew--60-61 T-1 (1789-90) 1806 Kamchadal-2
116, 133

the verst in circumference. On the [61] west side, it is sheltered by a mountainous narrow peninsula, and on the south side, by a small gut of land, consisting of pebbles, and called Koschka. Between that peninsula, and Koschka, one must run into the harbour. The breadth of this straight is 40, and the depth, from seven to nine fathoms. The bottom is muddy."

28: Sarytschew--61 T-1 (1789-90) 1806 Kamchadal
116, 133, 161, 361

"On the Koschka [CMC: a jutty of land at the entrance to Petropavlovsk harbor; see category 133, this source, pages 60-61] there are eight dwelling-houses, interspersed with several buloganen; or log-houses, and on the north shore of the haven are four, together with a wooden building for an hospital, and the store-houses built during the expedition of Commodore Behring, which are still in good condition. The number of the inhabitants is limited to eleven Kamtschadales, one ensign from the army, and 23 Kosaks. The country around the haven is mountainous, but the north and east sides have sufficient level ground for 300 houses."

28: Sarytschew--68-69 T-1 (1789-90) 1806 Kamchadal
116, 133

"On the 25th of February [CMC: 1790, while at Petropavlovsk], we observed an evident agitation of the earth, which is very frequent and strong, owing to its [69] proximity with the volcanic mountain of Awatska; but this was the first of the kind during our stay here. This mountain was likewise perfectly quiet, and emitted nothing but smoke; while the Klutschewish summit, on the other hand, sent forth, in January, flames, stones, lava, and a quantity of black sand, with which the whole circumjacent country was covered."

28: Sarytschew--69 T-1 (1789-90) 1806 Kamchadal

116, 133

"I sailed about for the purpose of surveying the bay of Awatska, and the two side bays. Rakowoi is three leagues long, and half a league broad; its depth is from 6 to 13 fathoms, and its bottom is muddy. The other, Targinskoi, situated on the north-west side of the Awatska bay, is five miles in length, and half a mile in breadth. Its north-east bank consists of a narrow mountainous promontory, which separates it from the Awatska bay. It has 13 fathom of water in the middle, which diminishes as you proceed downwards. Its bottom is likewise muddy.

The two rivers, Awatska and Paratunka, flow into the northern part of Awatskish bay, after running down the mountains through several low lands. From the mouth of these rivers upwards, there is a dry place half a mile broad; but elsewhere, the whole bay is tolerably deep, and would admit of large vessels to lie at anchor in 14 fathoms water. The bottom in the deepest places is muddy, but in the shallower parts is sandy."

000 those I had, and then proceeded upon my journey, reaching by midnight Kickchick, twenty miles, a place of equal wretchedness with the last, and like it containing but fourteen or fifteen inhabitants, most of whom are disabled from work by disease. With the same dogs I reached Kolofsky ostrog thirty miles along the sea coast, upon which a tremendous surf was roaring with a strong northwest wind. There are in the neighbourhood several fine lakes which never freeze, and produce trout and salmon peal of a fine flavour during the whole of the winter. Deer, mountain sheep, and game of every description that is found in the Peninsula abound in the mountains and forests, and fine meadow lands every where skirt the coast.

133 I remained to take tea with the old Toion, whom
563 I found to be a fiddler and a scholar, and depart-
361 ed for Vorofskoy ostrog, forty miles. The mountains
now approached nearer to the sea-coast, and present
some beautiful scenery. I put up at the abode of
a wealthy Russian farmer, and felt highly gratified
161 in observing a small but fat herd of cattle. This is
361 considered a rich spot, yet it contains only nine
133 dwellings with about forty inhabitants, not enough
to keep up the chase. The place is prettily situated on the Vorofskaya river, about four miles from the sea. There is a snug harbour at the mouth of the river, where the transports from Okotsk formerly visited, and the river is navigable to the village which retains the vestiges of a small fortress. The meadow lands about it are at once

29:Cochrane T-2(1821-22)1824 Kamchadal

133 extensive and luxuriant. The inhabitants provided
361 me with frozen fish, a delicacy I had so much en-
161 joyed on the Kolyma, with ducks and rein-deer meat, as also with dogs to resume the journey, which carried me to Kolpakofskoi ostrog, thirty miles, along a dreary sea beach. The village contains six dwellings and twenty people, who furnished me with dogs to Kroutogorova thirty miles further, a beautiful situation near the extremity of the almost level plane reaching from hence to Bolcheretzk. The famous Sopka, i. e. burning mountain, near Tchinsk, here becomes visible, and although the country is so rich, not a head of cattle is to be met with from Vorofskaya.

To Tchinsk are thirty miles of superior country, yet so deep in snow that we were obliged to take it by turns to go a head with snow shoes, at other times the government of a narte was thrown upon me, which I at first made but a bungling hand of. Tchinsk has twelve dwellings, it is consequently a considerable place! there are also two priests, brothers, whom I found drinking a
576 decoction of dried herb instead of tea. I felt angry with the Toion who had let slip eight dogs intended for me, and declined entering his dwelling, the strongest mark of displeasure which can be shown to these simple people. The poor fellow felt the slight so severely as he saw me entering another yourte, that I could not help regretting the deter-
361 mination I had made. To Soposhna it is thirty-five miles, which I travelled in company with the

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reverend pedlers, for every body here is a merchant. I made them happy by a pound of tea, a few pounds of tobacco, and a bottle of spirits. The road was very fine and the weather had much increased in cold, so much so, that the thermometer stood at 25°, which I had never before seen in Kamtchatka above 18°. Thence to Morososhna, thirty miles of a good road. The last named village may be termed large, containing eighteen dwellings and a hundred inhabitants, in the enjoyment of many luxuries, yet without cattle. Thence the road lay along the foot of the mountains, the scenery of which gives a relief to the eye as it is in general uninteresting all the way to Bolcheretzk, except at a few places. Upon the road to Belagolofsk ostrog, thirty-five miles, I got twice upset into the river without the means of drying or changing my clothes, and suffered much, in consequence, in my feet. I had a fine view of the magnificent Ichinskaya Sopka or mountain, which continued visible until I reached Khariuzova forty miles, the road to which is in general good, though there are some parts dangerous in the night time. The ice from the rapidity of the current, frequently sunk under us, but from our velocity of movement no accident happened.

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At midnight I continued on for Kovranskoy ostrog, twenty-two miles. There is here a law obliging the Toions to have a path made within twenty-four hours after every snow storm. Our chief had failed in his duty in this particular, and conse-

487 quently was obliged to go before upon his snow
R shoes; and such was his diligence from fear of reprehension,
177 that he not only arrived before me, but
.48 arrived in five hours, a very short time to accomplish
such a journey upon snow shoes. I found it
the most miserable place I had seen for a long
period, reminding me of Zashiversk in northern
Siberia. The brows of the hills are covered with
brush wood, with little other appearance of nature.
133 From hence to Uskolofskoy ostrog are thirty-five
161 miles, which I was obliged to do by walking and alternately
361 driving a narte, and cannot say which of
the two is the most fatiguing. The diseases prevalent
in the place prevented almost any assistance
being rendered us. There are no cattle, yet fine
meadow lands. Fish and game are abundant. At
this place I met with another old shipmate in the
person of the brandy contractor, who accompanied
me to the next station, Napanas, a village with six
dwellings and forty people. The road leading to
it is considered dangerous, owing to a large toondra
or swampy desert which must be crossed; the distance
300 is forty miles. We passed the desert in a slight
fall of snow, which had not been sufficient to obliterate
the marks of the track, else we must have been
compelled to halt whenever the snow overtook us.
I did not arrive until two o'clock in the morning,
having been previously hurled down a snowy declivity
of one hundred feet in depth: at the bottom
of which, I, guide, dogs and narte all lay huddled
together; however vexed I felt inclined to

133 Tygil stands on the river of its own name, at
161 thirty miles from the sea. The country round it has
361 somewhat of the picturesque during the summer,
but its situation in winter is exposed and dreary. A
range of mountains from the NE to the SE defend
it in some degree from the coldest winds, yet it is
on the whole but a poor place. There are at present twenty-seven dwellings and two hundred and
361 fifty inhabitants, and it is denominated a fortress;
181 formerly it may actually have been one, but at
R present will be best appreciated as to its strength
177 by a reference to George's Travels in Siberia, who,
. 71 speaking of fortresses or ostrogs, the latter word
comprehending Siberian fortresses, says, "It would
be dangerous to attempt storming them, for whoever wanted to mount the greatest and only bulwark, a wooden paling, would most probably come
to the ground with the whole structure about him."
Such I am certain is the present state of Tygil,
and which, with its half dozen Cossacks, can only
be held *in terrorem* over the neighbouring Koriaks:
the Kamtchatdales are not a people numerically or
physically strong enough to create a disturbance.

361 The inhabitants of Tygil are all Russians, they
563 have of late got a church and the walls of an hospital erected; when they are to be covered in I
know not, though shortly I hope, for they are
much wanted. The ravages of a certain disease
at this place are indeed dreadful, and I should
think ought to call forth the attention of the govern-

563 137 tatoes, cabbages, turnips and radishes; but the two former never arrive at complete maturity, the one being waxy, and the other without a head. The famous antiscorbutic cheremsha, or wild garlick, abounds, as does a small but delicious root, somewhat resembling a sweet potatoe, called, in the language of the country, kimtchiga. There is also an abundance of wild berries in the neighbourhood of Tygil, yet their chief support is fish and rein-deer, of both which I partook at the hospitable table of
000 the commander of the fortress. At the expiration of four days I departed, having remained so long to recover my feet, which had been severely frost-bitten from wet.

I was accompanied by the commander of the transport lying in the Haven: he was what is termed a good, though a droll, fellow; and I was
133 361 gratified with his society. Our route lay at first up the Tygil, which from its source to near the town runs through an interesting country. At midnight we reached Sedanka, a small village, containing six dwellings. From thence to Bolcheretzk is called the Tygil coast, which, generally speaking, is low and flat, the sea-coast being from thirty to forty miles from the mountains. The villages through which I had come were all of them upon the banks of some small streams, which, in most cases, rise in the mountains; but sometimes they emanate from the lakes, which are numerous. The rivers I do not apprehend to be

133 more than the melting of snow and rain which de-
231 scend from the eternally snow-clad peaks. The quantity of horned cattle upon the coast is so small as not to merit notice, although the pastures are extensive and fertile enough to feed millions.

563 At Sedanka we procured dogs to enable us to cross the mountains to the next station, a distance of one hundred miles. Early in the morning we passed the camp of the Koriaks, and continued our route along the Sedanka river for forty miles, when we reached the Rasoshna. We encamped for the night in the snow, the dogs round us, and then the fire; we passed on the whole, a pleasant night, although my feet were still in a bad state, owing probably to their late want of pedestrian exercise.
133 The following day we crossed numerous elevated
137 lakes, and then over mountains and a well wooded country. On our way we fell in with a caravan of eleven nartes from the town of Cliutchi bound to
133 Tygil. We continued until we reached an elevated
132 desert of ten miles long, which we crossed in a continual storm of wind and snow, called in this country *purga;* we halted in a miserable place, having come about thirty miles. I can hardly imagine how the poor dogs found their way, or how they managed to drag us along. There are times when these *purgas* are so tremendous that mountains of snow are levelled, immense valleys filled, whirlpools formed of snow, not only stopping the further progress of the traveller, but absolutely burying him

132 and his dogs: nothing can exceed the devastation,
133 or be compared to it, but the effects of the wind on sandy deserts or mountains. I have known instances of people detained for twenty and thirty days in this tremendous pass, and it is seldom that it is crossed without a gale. And yet all this difficulty and danger might be obviated simply by the erection of crosses or mounts, as in the northern parts of Siberia, where I have seen in the distance of thirty or forty miles, a small mound of earth, with a white and black chequered cross placed at every one hundred and fifty yards.

133 The night was exceedingly cold, and the snow
137 and wind prevented our even enjoying the luxury of a cup of tea, for no fire could be lighted. Crossing a second toundra, desert, of seven miles wide, with infinite labour to the dogs as well as ourselves, we entered upon a most magnificent country. Lofty, straight, and stout firs lined the right of the valley, while the dwarfish larch, and alder, mixed with birch, stood upon the left in all their bandied and
000 crooked shapes. The contrast was extremely pleasing as we glided along the milky valleys at a rapid rate. Immediately upon clearing the desert the snow and wind ceased, and we hailed the return of fine cold weather. Not long after we overtook a caravan of nartes in great distress, having been detained ten days in the mountains by the weather. The dogs had been without food for three days, and were evidently in the last stage. In the early

000 part of the evening we reached the Yelofka river,
which unites not far hence with the Kamtchatka,
running in a picturesque manner through the
361 country. At seven we reached the ostrog of Yelofka,
161 fortunate in having crossed the mountains so safely.

133 Yelofka is a pleasant village of eight dwellings
and forty-six people, the country round it is elevated and well wooded. We remained only a few hours to refresh ourselves, and then continued the journey along the river of its own name, the banks of which afford some beautiful scenery for about fifteen miles. We then came to a desert which we crossed in a purga, fortunately not very heavy. At forty miles we reached the village of Khartchina of
000 five dwellings and thirty inhabitants. I was welcomed to it by a respectable looking old man, a priest, son to the highly eulogized priest of Paratounka. The son perfectly well remembered Captains Cook and Clerk; he having been at that time a young man, living with his father at the village of Paratounka. Several uninteresting anecdotes were related of them, as also of Perouse, in their rambles of shooting or chasing the wild animals. I had at Yakutsk been recalled to the remembrance of Captain Cook by a silver watch, which now belongs to Captain Minitsky, of the Russian navy, and which, I think, is spoken of somewhere as having been given away by that great navigator to some individual merchant. He probably disposed of it, and thus at last it has fallen into the hands of the pre-

000 sent holder, who, though I feel assured he appreciates
it highly, yet would not retain it, should relations,
or others more nearly concerned, express a
desire to be possessed of so valuable a memorial.

133 From Kharchina the route lies over a large lake,
137 and thence over a fine open country, abounding
361 with some of the finest fir-trees I have ever seen,
reaching to the height of sixty and eighty feet. At
twenty miles we reached the ostrog of Kamennoy,
on the right bank of the Kamtchatka, and, changing
dogs, proceeded twelve miles farther to Kamakie
136 over numerous lakes near the river. The country
361 here abounds with red foxes, and is certainly
one of the most picturesque parts of the Peninsula:
the beautiful view of the Sopka, or Peak of Cliuchie,
was hid in the clouds. I movedon to wards
Nishney Kamtchatsk, also an antient capital in the
Peninsula, a far more eligible place than the present
000 site. The weather had now become very mild,
no less than 3° of heat of Reaumur. We made
good about seven miles of our journey through
very deep snow by the ensuing morning. For three
hours we did not move forward more than one
mile, a heavy fall of snow had taken place, and it
was found impossible to proceed, owing to the extraordinary
heat of the weather. No track nor scent
offered to the dogs, otherwise I would have persisted
in the prosecution of myjourney. The drivers,
however, with snow shoes actually sunk eighteen
inches deep in the snow, and I was therefore com-

000 pelled to return. We soon regained the ostrog
we had left, and there we passed the night, witnessing
such a scene of riot and drunkenness as is
quite beyond my pen to describe. My companion
had parted with a few bottles of spirits unadulterated,
which, when they had operated, induced him
again to launch out adulterated spirits, receiving, of
course, a sable for each bottle. I was thoroughly
convinced from this circumstance that Kamtchatka
should not be supplied with spirits.

361 I was mortified at not visiting the town of
161 Nishney Kamtchatsk, and its port, but may say
137 that the former contains twenty-two dwellings,
and one hundred and fifty inhabitants, and the latter
an accessible port, but much feared for want of
being frequented. Formerly, when the seat of government
was held there, vessels annually went to
St. Peter and St. Paul's for provisions, but this is
now no longer the case. Timber abounds in such
quantities and of such a quality as should induce
the government to fell and to export it to the present
capital, where it is much wanted. I reached
Cliuchie at midnight, having come over a few lakes
133 and a half frozen river. Cliuchie is a Russian peasants'
361 village, containing one hundred and eighty
563 inhabitants. It is pleasantly situated upon the
right bank of the Kamtchatka, at the foot of the
eastern termination of the lofty peak which is not
far from it. This peak is said to be the most elevated
in the peninsula, being about fifteen thousand

29:Cochrane T-2 (1821-22) 1824 Kamchadal

133 feet above the level of the sea. It has frequently emitted flames, lava, and dust, but its summit was not visible during my stay in this respectable village of Christians. After the grand eruption which I had witnessed in the Island of St. Vincent's, in 1812, I could feel no regret at not being able to see one in Kamtchatka. It is true that little or no mischief arises from the volcanoes of this Peninsula, and they may therefore be more innocently and placidly seen and contemplated.

651 The amount of tribute paid by the peasants is
563 about ten shillings, formerly it was twenty; being
R reduced one half at the time the Kamtchatdale yasack
177 was reduced from two to one sable. The
.65 country is in every respect most luxuriant and beautiful,
and were there a sufficiency of inhabitants,
as well as of horned cattle, it would no doubt make
one of the most desirable abodes in the world.
563 Wood of the first growth, fish in a most abundant
361 quantity, game of the finest flavour, and of various
species, pastures inconsumable; a chase which yields foxes, sables, river-otters, bears, wolves, &c. of the finest specimens, are what Cliuchie has to boast. Vegetables are raised with greater facility than in any other part of the peninsula. Wild berries are very abundant, and some little rye flour is produced, though not of so ripe a quality as to be of much use; such are, in short, the claims of Cliuchie, that it should undoubtedly be made the capital of the peninsula, and I am only astonished

000 teen days in a storm, and he and all the party, men and dogs, were nearly perishing of hunger, having partaken of nothing but youkola (dried fish) for five days. Having exchanged dogs with another narte,
574 I continued on for Pouschin, twenty miles, and
576 arrived before noon. The Toion and I had a difference of opinion, which I shall ever regret, as it arose from my ignorance of the proper character of the Kamtchatdales. The poor man had heard of my coming, and had actually provided a good dinner for me, which I did not partake of, in consequence, of his not inviting me; another poor man actually did invite me, and I entered his more humble dwelling. The Toion was much surprised, and more vexed at this slight, which tended to lower him in the opinion of his subjects. The fact proved to be that the Toion is really one of the oldest Kamtchatdales, and was only complying with the ancient custom of the country, which is not to invite a stranger into his dwelling, considering that such stranger has the right not only to take it, but even to eject its owners. I left him with great regret that I could not stay another day to make him amends; I did, however, all I could, with this view.

133 Ganal, forty-five miles from Pouschin, a ro-
132 mantic country, we passed in high glee at the near
361 prospect of finishing my journey. The elevated ranges of mountains which form the Ganal Valley have all flat summits. To the valley succeeds a level

133 plane, very subject to storms and heavy falls of
132 snow. I reached the place at nine in the evening.
The inhabitants,[1] amounting to thirty-two, live in
161 four yourtes, and are all afflicted with the disease
164 so common to the peninsula; and the contagion, and
262 want of medicine have been so great, that even the
361 children are equally afflicted, and the complaint of
scrofula is become hereditary. In this part of the
peninsula the chase is scarce, and the inhabitants
mostly subsist upon fish, a few mountain sheep, and
wild rein-deer, being the only meat they taste from
one end of the year to the other. The situation is
fine and highly productive in fish, but at this moment
there are not a sufficiency of people to transact
the ordinary business; a circumstance which
calls aloud for the compassion of the chief.

133 From Ganal to Malka are thirty miles, the first
361 ten of which are over a sterile mountainous country,
which is more than compensated by the succeeding
richness of a valley eighteen miles in
length. I crossed several times the Bistra, a
rapid stream, uniting with the Bolshaya Reka, and
was again obliged to become pilot, chief, and dog-master;
however, I managed very well, and arrived
early. Malka is deserving of little notice,
yet is said to be celebrated for its baths! The
situation is magnificently grand; the hospital
stands in the bosom of a lofty chain of elevated
mountains at two miles from the village. I was
welcomed by two old acquaintances, both of whom

[of Ganal village--Analyst]

563 sides trade. Of late the Emperor has given the clergy
793 an allowance of flour as well as a regular salary,
R and it may therefore be hoped that the natives will,
177 at least, be so far benefited as to have fewer of their
.79 visits, except on their spiritual concerns.

Whether the Russian government will pay any
000 attention to the serious and deplorable situation of
the peninsula of Kamtchatka is of no personal
consequence to me, though I may well feel a
strong interest concerning a place in which I resided
for more than a year, and where I married.
The ceremony was attended with much more pomp
and parade than if it had been celebrated in England:
it took place on the 8th of January, and I
certainly am the first Englishman that ever married
a Kamtchatdale, and my wife undoubtedly the first
native of that peninsula that ever visited happy
Britain.

The winter was passed in a constant round of
hospitality and comfort, and hardly any thing remarkable
133 occurred to call for observation. Three
shocks of earthquakes were felt, two of them
very severe: one threw the sand up from the
banks of the river Kamtchatka, and quite annihilated
the snow; the Kliuchefska Sopka also
132 emitted flames and lava. The snow began to disappear
at St. Peter and St. Paul's in the beginning
of May. By the middle of the month one of the
transports sailed from the port to Nishney Kamtchatsk,
reaching it in five days; and by the latter

[in the winter of 1821-22--Analyst]

291 the inhabitants make their parkas and all their warm
237 clothing, which are also exceedingly comfortable
132 and beautiful. The climate of the islands resem-
134 bles that of St. Peter and St. Paul's. The soil is
231 generally good, producing fine pastures. On the
first isle there was formerly an abundance of cattle,
but now only two cows remain.

133 The second island, about ninety miles from the
161 first, has seven yourtes, with thirty-five males and
651 forty-two females, paying tribute for itself and
R the fourteenth isle, nominally, thirty-five sea-
177 otters; that is, twenty-three foxes and one hun-
.65 dred and fifty roubles. The fourteenth isle has
three yourtes, fifteen males, and seventeen females. Of the intermediate islands, and those beyond the fourteenth, I could obtain but very little information; the whole are evidently volcanic productions, and are supposed to have been separated by some violent convulsion of nature from the peninsula of Kamtchatka. The islands, which are lofty and bold, are said to be without rivers, nor are there any harbours known. It is to be remembered, however, that they have been but very im-
101 perfectly surveyed. The inhabitants are supposed
197 302 to be of the same origin as those of Kamtchatka,
651 though they differ in the custom of wearing long
R 177 beards, which was probably introduced among
.65 them by the Russians. Their dialect is the same
with that of the inhabitants near Cape Lopatka;
from whence baidares are frequently sent to the
first and second isle, to bring the tribute and furs.
[the Kurils--Analyst]